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A MAGAZINE FOR ARMOR ENTHUSIASTS
Volume 4 Number 2



The Indian Army Recce Squadron

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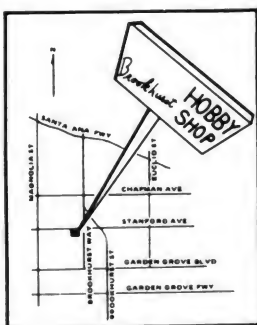
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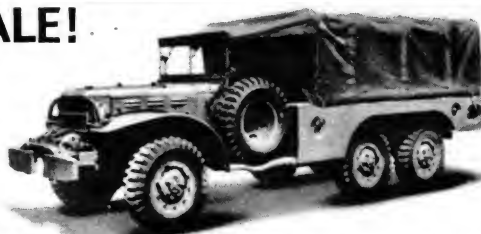
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As in the past several issues, AFV-G2 is continuing to present the first complete illustrated history of the Armored Fighting Vehicles of the Italian Army. Authored by Dr. Nicola Pignato, a widely-known historian on the Armed Forces of Italy, this serialized book is available only to readers of AFV-G2. The portion of the book in this issue will be found at the center of the magazine, between pages 18 and 19, bound in with the regular pages. To remove the center supplemental sheet in this issue, use a razor blade or sharp knife to carefully slit between the staple holes in the sheet, which will then be free of the magazine. Readers may then punch the supplemental sheets with a three-ring binder punch and install them in a separate binder. When placed together with the other supplemental sheets from AFV-G2, the complete series will present a detailed history of all Italian armored vehicles, with numerous previously-unpublished photographs and 1:50th scale drawings. The sheets are separately numbered for ease of binding, and at the end of the publication, a complete index and table-of-contents will also be furnished to readers in order to complete the book.



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February 1973

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AFV's of Italy, the continuing series by Dr. Nicola Pignato

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Cover:

One of the two experimental T-32 Howitzer Motor Carriages built to explore the concept of a self-propelled "105" howitzer. This vehicle was the prototype for the very successful M7 HMC, used in World War II and Korea. Shown here during field testing (apparently by the 8th Armored Division), the T-32 was built on the chassis of the M3 "Grant" Medium Tank.

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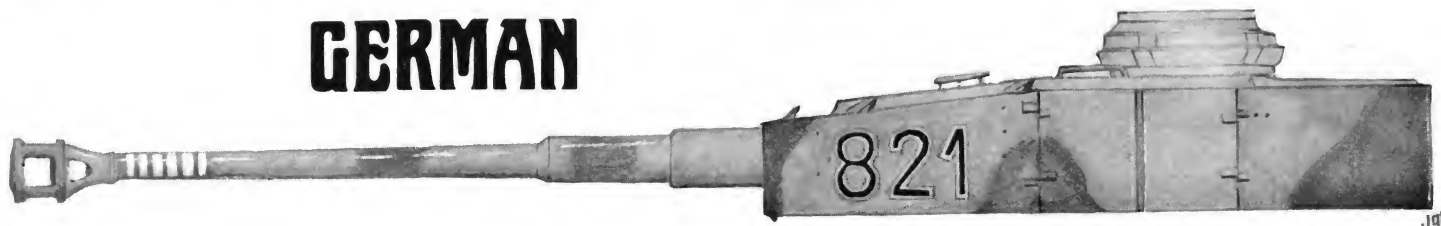
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A Consumer's Guide to GERMAN



7.5cm AMMUNITION

by Mark Diehl

Ammunition for German 75mm Weapons is the second in a series of articles dealing with German tank and antitank ammunition used in World War II. Due to the large number of round varieties in that caliber, only native German KwK, StuK and Pak rounds will be presently discussed. Subsequent articles will deal with 1) ammunition for foreign weapons in German service, and 2) antitank ammunition for German field artillery pieces.....

In World War II., the 75mm/3-inch caliber range contained the greatest variety of weapons and ammunition. Over fifty individual rounds in these calibers were in use by the Germans during the war. These rounds were used in all types of weapons: infantry guns and armored vehicle weapons, antitank and field artillery pieces. As dictated by the winds of war, frugality was a rule -- captured 75mm/3-inch weapons from the Lowlands, Balkans, France and Russia were pressed into service and these needed appropriate ammunition.

The reason for the prevalence of these caliber weapons was one of convenience; they provided adequate performance with suitable handling characteristics. Although the basis for the caliber could probably be traced back to the mid-1800's, the major development came with the production of the French 75mm M-1897. The first practical use of a German tank-mounted 75mm gun came in 1936 with the introduction of the Pz. Kpfw.IV. Ausführung A. This gun, bearing a resemblance to an infantry gun, was well suited to its envisioned role: providing high-explosive fire support for lighter tanks whose smaller, armor-piercing weaponry would have little effect on targets such as antitank guns and pillboxes. As years progressed, this gun was incorporated into the Pz.Kpfw. III., assault guns, armored cars and halftracks. This weapon was the 7.5cm, 24 caliber-long, KwK/StuK 37.

As the war progressed, German Panzer units found enemy tanks (particularly in Russia) which proved difficult for 5cm Pak and KwK guns to handle. Consequently, on 18 November 1941, the Reich Army Weapons Department (Heeres-Waffenamt) gave Krupp a contract to develop higher-performance 75mm tank armament. Krupp was to receive aid from Rheinmetall-Borsig, who had been issued an earlier similar contract on 18 July 1941. Their efforts produced the 7.5cm KwK 40 (originally designated KwK 44) with a bore-length of 43 cali-

bers. This gun was installed in the Pz.Kpfw.IV. F2 and G tanks from late 1941 into 1942. In June 1942, an improved model KwK 40 measuring 48 calibers in length began to be introduced in the Pz.Kpfw.IV. H and replaced the 43 caliber weapon in some of the earlier models.

Slightly modified to a bore length of 46 calibers, the KwK 40 appeared in combat as the 7.5cm Pak 40. This gun was also used in a series of self-propelled versions and in a field mount that resembled the 5cm Pak 38. Its rubber-tired carriage with torsion-bar suspension enabled a maximum cross-country speed (towed) of 25 miles per hour. The gun shield was sloped and consisted of two parallel 4mm armor plates separated by a space of 25mm. (This type of shield was designed to defeat the steel-cored armor-piercing rifle/machine gun rounds such as found on the Russian front.) In this weapon, the Germans finally had an antitank gun effective against the T34 at ranges of 1000 meters.

The final development in a high-powered 75 mm gun came out of the Rheinmetall-Borsig tests, first of a 60 caliber-long gun and finally of a 70 caliber-long weapon. The specifications given by the army called for a penetration capability of 140mm at 1000 meters. This gun, the 7.5cm KwK 42 (and StuK 42), was delivered for use in the Panther models D, A and G in 1942, 1943 and 1944 respectively; and for the Jagdpanzer IV., nicknamed "Guderian's Chicken", which entered service in August 1944. No development of a longer 75mm gun was undertaken because it was determined that the increased muzzle velocity would not produce the equivalent penetration attained by using a larger-caliber weapon. (See AFV-G2, Vol. 3, No. 8, pp.7)

All ammunition for these weapons was of the fixed variety. Cartridge cases stamped with "6354" were for the KwK/StuK 37, and were initially made of brass. With the shortages of brass, steel cases, designated "6354 st", were developed. This same progression held true with the "6339" cases, which were for the KwK/StuK 40, except that few were made of brass. The "6340 st" case, used in the KwK/StuK 42, was also made of tempered steel. As in the 8.8cm ammunition, C/12 N/A percussion or C/22 electric primers were used; the C/12 N/A for the Pak 40 and the C/22 for the KwK and StuK weapons. Cartridge case data is presented in Table II.

Propellant for the KwK 37 and StuK 37 rounds

TABLE I. - GERMAN 7.5cm WEAPONS

Designation	Model	Caliber Length	Employment/Vehicle (Sd.Kfz. Number)
-------------	-------	----------------	-------------------------------------

Tank Guns:

7.5cm KwK	37	24	Panzer III. M, N (141/2) and some III. L (141/1); Panzer IV. A, B, C, D, E, F1 (161); Halftracks (250/8 and 251/9); Armored Car, 8 Wheel (233)
7.5cm KwK	40	43	Panzer IV. F2 (161) & G (161/1)
7.5cm KwK	40	48	Panzer IV. H, J (161/2)
7.5cm KwK	42	70	Panzer V. D, A, G (171); Panzerjäger IV. (162)

Assault Guns:

7.5cm StuK	37	24	Sturmgeschütz III. A, B (142); Halftrack (251/9); Armored Cars (233 and 234/3)
7.5cm StuK	40	43	Sturmgeschütz III. (142/1)
7.5cm StuK	40	48	Sturmgeschütz III. G (142/1); Sturmgeschütz IV. (163)
7.5cm StuK	42	70	Panzerjäger (Jagdpanzer) IV. (162/1)

Antitank Guns:

7.5cm Pak	39	48	Panzerjäger 38(t) (138/2); Panzerjäger IV. (b-design & 162)
7.5cm Pak	40	46	Split-Trail Towed AT Gun; Panzerjäger H39(f); Panzerjäger FCM-36(f); Halftrack (251/22); Armored Car (234/4) and ex-French Schneider Armored Car
7.5cm Pak	40/1	46	Panzerjäger "Marder I." (135); Sfl. RSO*
7.5cm Pak	40/2	46	Panzerjäger "Marder II." A, B, C & F (131), D & E (132)
7.5cm Pak	40/3	46	Panzerjäger "Marder III. & 38(t)" (138)

* = Raupenschlepper Ost, or Eastern Front Tractor

was Nitrocellulose. For the other higher-velocity weapons, the propellant was Diglycol, which had 1.13 times the propellant power of Nitrocellulose.

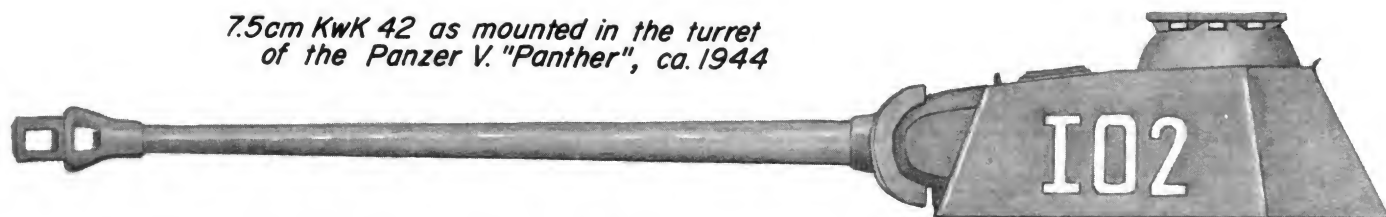
7.5cm ammunition types consisted of 1) conventional high-explosive, 2) armor-piercing, 3) tungsten-carbide cored armor-piercing, 4) shaped-charge, 5) smoke and 6) cannister. The several experimental high-velocity sabot-projectiles developed are beyond the scope of this article. The controlled fragmentation and incendiary shrapnel rounds which are found in the 8.8cm ammunition had no counterpart in 7.5cm ammunition. Table III. contains details of the various tank and antitank 7.5cm rounds.

Armor-piercing rounds were designated Pzgr.Patr. (for Panzergranate Patrone) and, in one case, K Gr (for Kanone Granate). With the single exception being the round K Gr Rot Pz, all rounds were of the

APCBCHE type --- the former round had its armor-piercing cap serve in the ballistic cap role. All rounds contained a base-fused, base-loaded high-explosive charge. The Pzgr. Patr. 39 FES had a soft, sintered-iron rotating band; additionally, the armor-piercing cap on this round was also very blunt. The terms large and small cavity refers to the space available for explosive filler and fuse.

Two tungsten-carbide cored AP rounds belonging to the Pzgr. 40 (AP 40) series were produced. They differed in their construction of the round casing, with the Pzgr. 40(W) being slightly huskier. (This round type has been frequently misnamed "arrowhead" in reference to its use in squeeze-bore weapons. The Pzgr. 40 series cannot be used in such a gun.) This HVAP round contains no explosive charge, and consequently the smoke tracer was inserted directly into the steel

7.5cm KwK 42 as mounted in the turret of the Panzer V. "Panther", ca.1944



Opposite Page: 7.5cm KwK 40 as mounted in the Panzer IV, H, ca.1944

TABLE II. - 7.5cm CARTRIDGE CASE DATA

Designation	Length	Mouth Dia.	Shoulder Dia.	Rim Dia.	Weight	Primer	Weapon Useage
6340 st	71.2cm	7.76cm	8.1 cm	10.1 cm	2.82 kg	C/12-N/A	Pak 40, KwK 42, StuK 42
6339	49.25cm	8.0cm	9.75cm	10.2cm	4.17 kg	C/22	KwK 40, StuK 40
6354, 6354st	24.3cm	7.43cm	7.72cm	9.1cm	0.96 kg	C/22 31	KwK 37, StuK 37

core-liner behind the hard-metal core. Some variants of these rounds used a magnesium alloy composition in the nose of the ballistic cap; upon striking a target, the impact energy would ignite this cap and the resultant flash would aid the gunner in locating the hit.

Shaped or hollow charge (HEAT) rounds were nose fuze. Two charge shapes were found: hemispherical and conical. Composition of the charge was usually a Cyclonite/TNT mixture having a relatively high brisance. Typical battlefield penetrations ranged from 80 to 90mm, depending upon angle of strike.

The 7.5cm smoke shell was designated Nbgr. Patr. (for Nebelgranate Patrone). A translation of Nebel is "fog" or "mist". The external construction of this round was similar to the Spgr. 34, with the exception of a filler-hole positioned midway along the shell body. Proceeding from the fuze base to the shell base ran a central bursting tube containing 57 grams of picric acid. The smoke composition contained 80% oleum -- sulfur trioxide dissolved in concentrated sulfuric acid -- and 20% pumice -- inert, porous glass filler. Smoke production upon burst was caused by release of sulfur trioxide into the atmosphere where it formed a dense, ground-hugging, irritating cloud. Due to the corrosiveness of the filler, these rounds were usually loaded immediately prior to their expected use.

The cannister round was designated Kartätschen, meaning Case Shot. This round contained 960 steel balls housed in a tin container. Aside from these balls, components of the round were the tin sleeve, a thin nose cap and a thick (about 1cm) base driving plate. After leaving the barrel, the case disintegrated, leaving the balls to fan out over a broad area. This round

could only be used in guns without muzzle brakes.

Table IV. shows some details on 7.5cm complete rounds. Extensive penetration data is given in Table V. Fuze information, where reliable, is presented in Table VI.

Battlefield employment of these rounds followed typical German doctrine. High-explosive rounds were used for demolition effect; principal ground targets were soft vehicles and emplacements, buildings, strongpoints and distant troop concentrations.

Instances on the Eastern Front, such as the concentration of Soviet infantry, favored the use of cannister over HE or machine gun fire. The economics of such use can be easily seen... a single two second burst from one of the various machine guns mounted on an armored vehicle would produce 26 to 34 rounds, while a single cannister round would produce almost 1000 rounds. While the machine gun burst might produce 5 to 15% casualties in a platoon low on a grassy field, the cannister shot would likely cause over 90% casualties, PROVIDED the target was within 200 to 250 meters.

Smoke was often used to smother enemy anti-tank positions and thereby safeguard tank formations. In this kind of action, one round every 45 seconds would be sufficient to mask visibility from one position on a calm day. Increased wind lowered smoke density and life, requiring more rounds to achieve the same effect.

The 7.5cm Pak 40 became the principal German antitank weapon as the middle of the war came. Either in its towed or self-propelled versions, it often formed the flank guard of sweeping armored movements on offense. Defensive tactics evolved where up to ten

- Text Continued on Page 32 -

TABLE IV. - COMPLETE ROUND DATA

Type of Round	Caliber Length	Round Length	Round Weight	Propellent Weight
7.5cm Spgr. Patr. KwK (34)	24	34.3cm	7.05 Kg.	0.35 Kg.
7.5cm Gr. Patr. 38 HL KwK	24	43.0cm	6.20 Kg.	0.36 Kg.
7.5cm Pzgr. Patr. KwK	24	50.5cm	8.35 Kg.	0.35 Kg.
7.5cm Nb. Gr. Patr. KwK	24	53.0 cm	7.50 Kg.	0.36 Kg.
7.5cm Spgr. 34	46	100.5cm	9.31 Kg. (e)	1.66 Kg. (e)
7.5cm Pzgr. Patr. 39. KwK 40	46	96.2cm	13.10 Kg. (e)	3.48 Kg. (e)
7.5cm Pzgr. 40	46	97.7cm	8.61 Kg.	2.25 Kg.
7.5cm Spgr. 34	48	78.6cm	9.90 Kg. (e)	1.30 Kg. (e)
7.5cm Pzgr. Patr. 39. KwK 40	48	74.3cm	13.40 Kg.	2.43 Kg.
7.5cm Pzgr. 40	48	75.6cm	9.28 Kg. (e)	1.57 Kg. (e)
7.5cm Spgr. 42	70	100.9cm	10.80 Kg. (e)	2.21 Kg. (e)
7.5cm Pzgr. Patr. 39. KwK 42	70	96.0cm	13.80 Kg. (e)	3.71 Kg. (e)
7.5cm Pzgr. 40 (W)	70	92.8cm	9.52 Kg. (e)	2.54 Kg. (e)

Note For data marked (e), no accurate information was found. The values listed were estimated using a computer program.

TABLE III. - PHYSICAL DETAILS OF 7.5cm PROJECTILES

ENTRY:	1	2	3	4	5	6	7	8
GERMAN DESIGNATION:	Pzgr. Patr. KwK	Pzgr. Patr. (KwK 38)	Pzgr. Patr. 39 KwK 40	Pzgr. Patr. 39 FES	K. Gr. Rot. Pz.	Pzgr. Patr. 39 KwK 42	Pzgr. 40 Pak. 40	Pzgr. 40 (W)
FOR WEAPON:	KwK 37 StuK 37 LFK 18 LG 40	KwK 37 StuK 37 LFK 18 LG 40	KwK 40 StuK 40 Pak 40	Pak 40 & Variants KwK 40 (L43) StuK 40 (L43)	LFK 18 FK 16 n/a FK 16/1 FK 243M KwK 37 StuK 37	KwK 42 StuK 42	Pak 40 StuK 40 KwK 40	Pak 40 StuK 40 KwK 40
WEIGHT:	7.04 Kg.	7.0 Kg.	6.8 Kg.	6.88 Kg.	6.93 Kg.	7.27 Kg.	3.54 Kg.	4.16 Kg.
BURSTING CHARGE:	TNT	TNT	Cyclonite	RDX	TNT	Cyclonite	None	None
CHARGE WEIGHT:	1.33 Kg.	1.33 Kg.	82 Gm.	83 Gm.	114 Gm.	118 Gm.	—	—
BOOSTER:	90% PETN	90% PETN	90% PETN	90% PETN	90% PETN	90% PETN	—	—
FUZE:	Bd.Z.F. 7.5cm Pzgr.	Bd.Z.F. 7.5cm Pzgr.	Bd.Z. 5103	Bd.Z. 5103	Bd.Z.F. 7.5cm Pzgr.	Bd.Z. 5103	—	—
COLOR:	Black	Black	Black w/Red Band & Mkg.	Black w/Red Markings	Black w/Red Band	Black w/Red Markings	Black	Black with White "W"
EXPLOSIVE CAVITY SIZE:	Large	Large	Small	Small, Nr.1 Tracer	Small	Small, Nr.14 Tracer	None	None

ENTRY:	9	10	11	12	13	14	15	16	17
DESIGNATION:	Kt. KwK.	Sprgr. Patr. KwK. (34)	Sprgr. 34	Sprgr. 42	Gr. Patr. 38 HL/A	Gr. Patr. 38 HL KwK	Gr. Patr. 38 HL/B	Gr. Patr. KwK HL/B	Nbgr. Patr. KwK
FOR WEAPON:	KwK 37 StuK 37 LFK 18	KwK 37 StuK 37 KwK 40 StuK 40 Pak 40* Variants	KwK 40 StuK 40 Pak 40 & Variants	KwK 42 StuK 42	KwK 37 StuK 37 KwK 40 StuK 40 Pak 40 FK 16 LFK 18 LG 40	KwK 37 StuK 37 KwK 40 StuK 40 LFK 18 LG 40 Geb G 36	KwK 40 StuK 40 Pak 40 & Variants LG 40	KwK 40 StuK 40 Pak 40 LFK 18 LG 40 Geb G 36	KwK 37 StuK 37 KwK 40 StuK 40 LFK 18
WEIGHT:	6.7 Kg.	5.74 Kg.	4.43 Kg.	5.77 Kg.	4.95 Kg.	4.88 Kg.	4.54 Kg.	4.46 Kg.	6.18 Kg.
BURST. CHARGE:	None	60/40 AmatoI	60/40 AmatoI	60/40 AmatoI	95/05 Cy-clonite/TNT	95/05 Cy-clonite/TNT	95/05 Cy-clonite/TNT	95/05 Cy-clonite/TNT	Picric Acid
CHARGE WEIGHT:	—	.853 Kg.	.454 Kg.	.654 Kg.	.604 Kg.	.555 Kg.	.570 Kg.	.524 Kg.	.57 Gm.
BOOSTER:	—	Zdlg. C/98	Zdlg. Np.10	Wif. Np.10	Zdlg. 42	Zdlg. 42	Zdlg. 42	Zdlg. 42	PETN/Wax
FUZE:	—	Kl.Az. 23	Kl.Az. 23umg	Kl.Az. 23	Az. 38	Az. 38	Az. 38	Az. 38	Kl.Az. 23Nb.
COLOR:	Olive Green	Olive Green	Olive Green	Olive Green	Olive with Black "HL/A"	Olive with Black "HL"	Olive with Black "HL/B"	Olive with Black "HL/B"	Olive with White "Nb"
NOTES:	960 ea. 9mm Steel Balls	*Pak 40 proj. has FES.							80/20 Oleum-Pumice Smk.

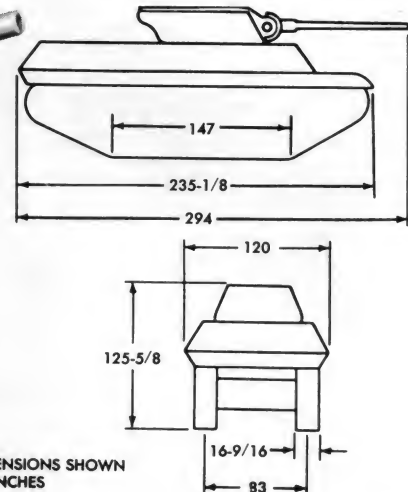
TABLE V. - 7.5cm AMMUNITION PENETRATION.

Weapon Data	7.5cm KwK or StuK 37 (L/24)		7.5cm KwK or StuK 40 (L/43)		7.5cm KwK or StuK 40 (L/48)		7.5cm KwK or StuK 40 (L/70)		7.5cm Pak 40 (L/46)	
	Pzgr. Patr. 38 KwK	Spor. Patr. 34 KwK	Pzgr. Patr. 39 KwK 40	Pzgr. 40	Spor. Patr. 34 KwK	Pzgr. 40	Pzgr. Patr. 39 KwK 40	Spor. 42	Pzgr. Patr. 39 KwK 40	Spor. Patr. 34 KwK
Projectile	7.04	5.94	6.8	3.54	5.74	3.54	6.8	7.27	4.16	5.77
Weight - Kg.	385	420	740	930	550	930	750	935	1120	700
Muz.Vel.- M/S										
ARMOR PENETRATION (Figure of Merit = 1.2) (Penetration in mm.)										
Range										
Point Blank	62	30	139	176	52	141	176	190	212	72
500m.	54	26	126	154	47	128	154	160	186	61
1000m	49	23	113	133	42	115	133	135	160	52
1500m	44	20	102	115	37	103	115	114	138	44
2000m	39	18	91	98	34	92	98	98	118	38
2500m.	33	15	82	83	30	83	83	88	100	33
STEEL PENETRATION (Figure of Merit = 0.46) (Penetration in mm.)										
Range										
Point Blank	160	73	351		135	366		494		187
500m.	140	68	327		122	338		416		159
1000m.	127	59	294		109	299		351		135
1500m.	110	52	265		96	268		296		114
2000m.	98	47	236		88	239		255		99
2500m.	85	39	213		78	216		229		86
REINFORCED CONCRETE PENETRATION (Penetration in mm.)										
Range										
Point Blank	81	39	208		78	211		285		109
500m.	73	34	189		70	181		240		91
1000m.	66	30	170		63	171		203		78
1500m.	58	27	153		55	154		171		66
2000m.	49	23	137		48	138		147		57
2500m	40	19	123		41	124		132		49

CARRIAGE, MOTOR, 90-MM GUN, M36



RA PD 137737



NOTE: ALL DIMENSIONS SHOWN
ARE IN INCHES

Technical Manuals: 9-758, 9-1731B, 9-1731D, 9-1731G, 9-1731K, 9-1750A, 9-1750B, 9-1750L, 9-1825A, 9-1825B, 9-1826B, 9-1828A, 9-1829A; **Supply Catalog:** SNL G-210.

Classification: Standard.

Armament: 1 gun, 90-mm, M3, turret mounted; 1 gun, machine, cal. .50, Browning, M2 heavy barrel (flexible), pedestal mounted on top of turret bustle.

Ammunition: 47 rounds, 90-mm; 1,050 rounds, cal. .50; 450 rounds, cal. .30, carbine; 12 hand grenades; 4 smoke pots; 18 signal, pyrotechnic.

Purpose: To provide mobility for 90-mm gun and crew protection in offensive combat.

Fire Control and Vision Devices: Periscope, M13, or M13B1, or M6 (vision); quadrant, elevation, M9; quadrant, gunner's, M1; telescope, M83C or M76F, or M71C; telescope, panoramic, M12 (sight); indicator, azimuth, M18.

Communications: (SCR-619 or SCR-610) and (RC-99); or (SCR-619 or SCR-610) and (RC-99) and (AN/VRC-3).

GENERAL DATA

Crew	5
Weight, fighting	(lb) 61,000
Overall length w/gun in traveling position	(in.) 254
Shipping dimensions, uncrated	(cu ft) 2,200; (sq ft) 240
Ground clearance	(in.) 17 3/4
Pintle height, loaded	(in.) 27 1/4
Ground pressure	(psi) 12.6
Electrical system	(volts) 24
No. of batteries	(12-volt) 2
Type of ground	negative
Fuel octane rating	80
Capacities:	
Fuel	(gal) 192
Cooling system	(qt) 68
Crankcase, refill	(qt) 32
Transmission, differential, and final drives:	
Three-piece, round-nose	(qt) 152
One-piece, sharp-nose	(qt) 164
Brakes	mechanical, controlled-differential
Parking brake, type	pedal for locking steering brake
Transmission forward speeds	5
Gear ratio	High 0.73:1; Fourth 1:1; Low 7.56:1
Differential-drive gear ratio	3.53:1
Final-drive gear ratio	2.84:1
Hull construction	welded homogeneous armor plate
Armor, Turret	Welded, armor plate.

PERFORMANCE

Maximum grade ability	(percent) 60
Turning radius	(ft) 31
Fording depth	(in.) 36
Maximum width of ditch vehicle can cross	(in.) 89
Maximum vertical obstacle vehicle can climb	(in.) 18
Fuel consumption (mpg): Off highway 0.6	On highway 0.8
Cruising range (mi): Off highway 110	On highway 155
Allowable speed, governed	(mpg) 26
Maximum allowable towed load, gross	(lb) 10,000

ENGINE

Manufacturer:	Ford	Model GAA
Type	4-cycle, valve-in-head; No. of cylinders (60-deg V)	8
Displacement	(cu in.)	1,100
Bore	(in.)	5.4
Stroke	(in.)	6
Governed speed	(rpm)	2,600
Brake horsepower (max w/std accessories)	450 at (rpm)	2,600
Torque (max w/std accessories)	950 lb-ft at (rpm)	2,100
Type of ignition		magneto

ADDITIONAL DATA

One-piece or three-piece differential housing used on this vehicle.
Data given w/track, rubber, T51. Track, rubber, T48; tracks, steel T49 and T54E1; track, rubber-backed steel, T74 are interchangeable.
Manual and power turret-traversing mechanism.
Auxiliary generator: Homelite Model HRUH-28.
Early models equipped w/hand brake on rear of transmission.

ARMOR in VIETNAM

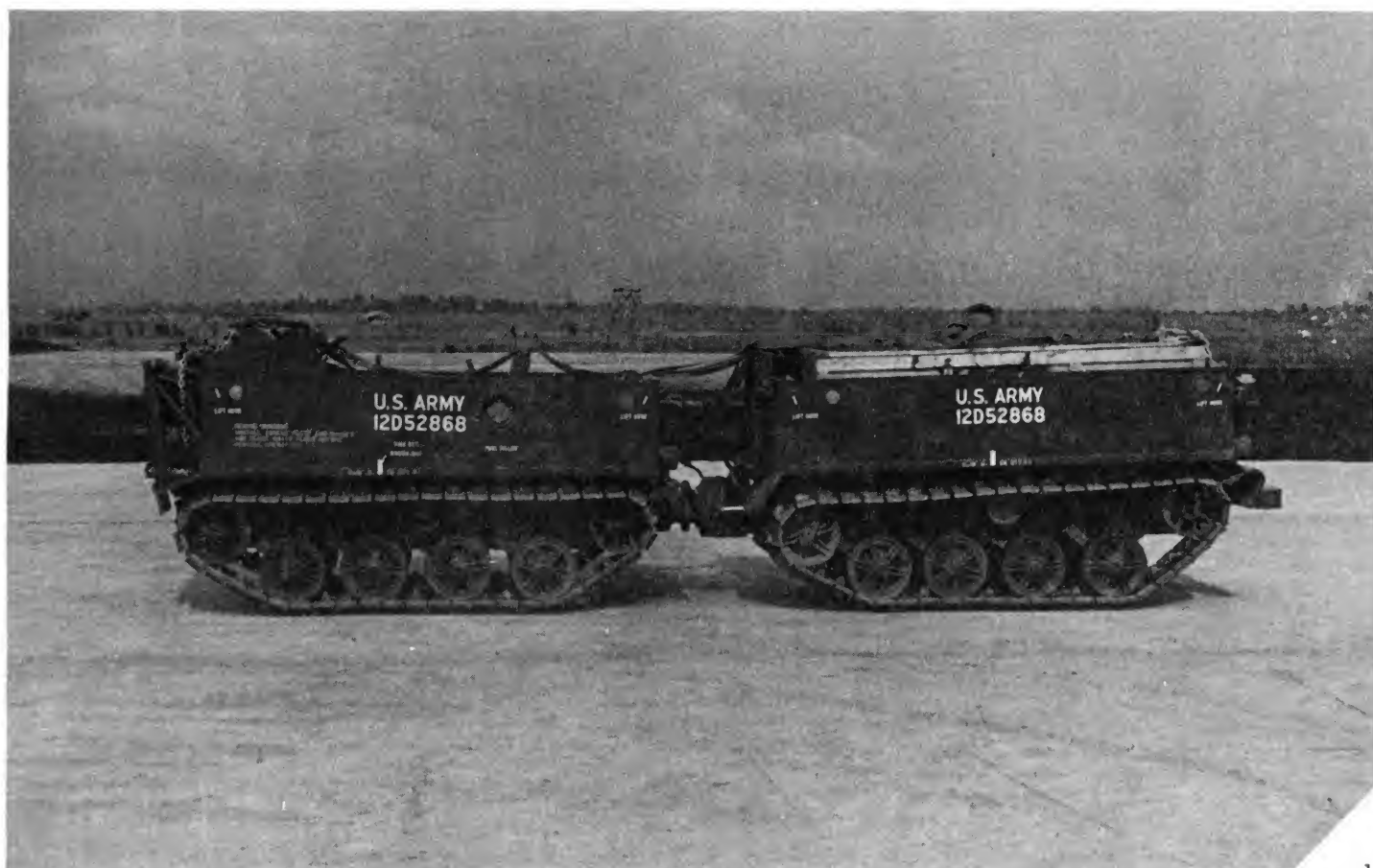


The XM-571 'Dynatrac' Cargo Carrier

While not "armored", the XM-571 Cargo Vehicle is an interesting "jointed" or "articulated" cargo carrier that has excellent flotation over difficult terrain. As shown here, it is light enough for air transportability, both inside and under the CH-47 "Chinook" helicopter commonly used by the U.S. Army in Southeast Asia.

With power provided by a modified Chevrolet Corvair six-cylinder "pancake" engine in the front, or driver's unit, the XM-571 may be equipped with either one or two "trailer" units, which receive power through a flexible shaft which couples the units together. This "coupling" shaft is sufficiently flexible to allow the trailing units to conform to every fold of the terrain and still transmit power. While the "trailer" units carry the same registration numbers as the driver units, they are interchangeable between different XM-571's for greater flexibility of use.

The photos show an XM-571 being air-transported. Note that the windshield and optional gun ring (which is available as an "add-on" kit) is stowed or folded during air movement. The units are fully loaded with cargo (which is tied-in) and the flexible support straps connected to the CH-47 carrying sling. After being air-transported, the XM-571 can be easily disconnected and used to carry men or cargo through swampy and otherwise impassable terrain as required to support combat operations by air mobile units. Quite often, XM-571's were pre-loaded with required ammunition, rations and supplies for operations. After being transported to the zone-of-action, these XM-571's could follow and support the "grunts", going over extremely rugged terrain. With a payload of one-ton for the two-unit configuration, these vehicles have well proven their concept in use in Vietnam under trying conditions of humidity, dust and moisture, as well as heat. While their continued use is to be determined from experiences gained in Vietnam, it would seem that there is definitely a place for such a vehicle in a modern air-mobile army.



TANKS IN PICTURES

FROM THE COLLECTION OF F. J. TYSON



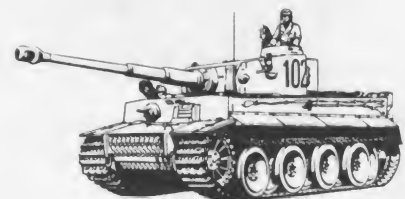
PHOTOGRAPH CAPTIONS:

A PANZER III (RIGHT 3/4 REAR VIEW)
TAKEN AT DANISH MILITARY MUSEUM
IN 1970. PHOTO BY CLIFF LOGAN

B PANZER III (RIGHT 3/4 FRONT VIEW) IN
COPENHAGEN, DENMARK IN 1970.
PHOTO BY CLIFF LOGAN

C HALFTRACK 251/1 D MODEL (LEFT SIDE
VIEW) PHOTO BY CLIFF LOGAN

D LEOPARD (WEST GERMAN) TAKEN IN
1970 NEAR SOEST, W. GERMANY.
PHOTO BY CLIFF LOGAN.





E LEOPARD (LEFT SIDE VIEW) DURING MANEUVERS IN 1970. PHOTO BY CLIFF LOGAN



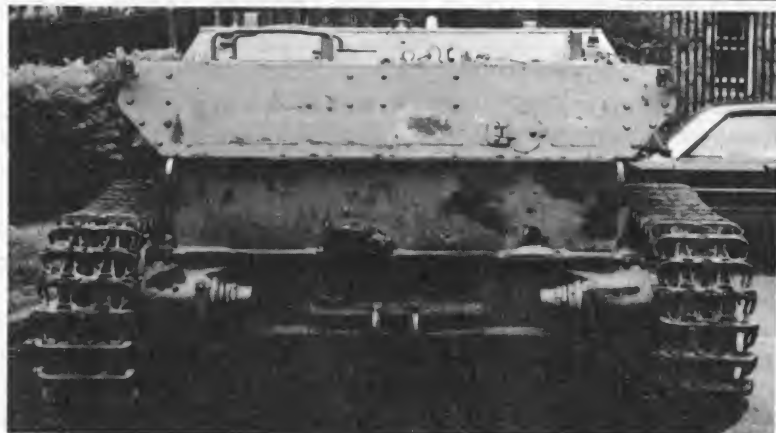
JAGDPANZER IV/70 (FRONT VIEW) TAKEN IN 1970 BEFORE REPAINTING AT OTTAWA, CANADA. PHOTO BY WALTER P. WARREN



G JAGDPANZER IV/70 (REAR VIEW) AT CANADIAN WAR MUSEUM. PHOTO BY WALTER P. WARREN



JAGDPANZER IV/70. (RIGHT SIDE VIEW)
NOTE: REAR ARMOR SHIELDS GONE OVER AIR INTAKES PLUS REAR PORTION OF FENDERS.
PHOTO BY WALTER P. WARREN



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SCALE AFV SERIES



Book Review: TD, A Brief History of the 899th Tank Destroyer Battalion, edited by David R. Haugh (Recon Publishing, Box 8688, San Jose, CA 95155, \$1.00)

Review by James Steuard

Tank Destroyers and TD units is a subject area not explored by armor books until this offering by a new company. This 28 page booklet traces the unit history of the 899th Tank Destroyer Battalion, a unit that saw combat in North Africa and in France in the period of 1943-45. The 899th was one of the first tank destroyer units to be equipped with the M-10 Gun Motor Carriage, which they used to good advantage in the fighting in the European Theater of Operations. This book is written in two parts; first, a narrative telling the unit's history from its formation in 1940 up to the end of the war, which found the unit in Germany. Although earmarked for the Pacific theater, the 899th was not shipped there, being instead disbanded in Germany. The second part of the book traces the amount of enemy materiel destroyed by the 899th, listed in chronological order. The photographic content of the book consists of 21 excellent, good contrast photographs, most of which are fresh and new. Numerous photos show German vehicles (mostly Panthers and Jagdpanthers) which were destroyed by the tank destroyer battalion.

This is an excellent booklet for a very modest price, and is one that is well worth acquiring if you're interested in the ETO and in the knocking-out of German armored equipment.

Book Review: Panzer in Russland, by Horst Scheibert and Ulrich Elfrath (Podzun Verlag, Dorheim West Germany, 237 pages)

Review by Duane Thomas

One of the most recent books on armored subjects to come from Germany, Panzer in Russland has an advantage for American readers in that the text is partially translated into English. As the title suggests, this book covers German armored operations in Russia from 1941-45, in other words, all operations on the Eastern Front. The book contains 322 photographs and most of these illustrate the equipment used by both the Germans and Russians. The editor has pointed-out to me that quite a few of the photographs have appeared in other photo books published by this same company (Podzun Verlag), so if this is objectionable to you, please be forewarned.....

The book is organized chronologically, starting with the invasion of Russia in 1941. The amount of photographic coverage gradually declines, until there are very few photos to illustrate the fighting in 1945; I would judge that this is largely due to the lack of available photos from the 1944-45 period. There are numerous good clear photos of some late-war German equipment and vehicles, such as the Pz. Kpfw. V. "Panther" and Sturmgeschütz III. assault guns, and I was able to pick-out several good marking schemes to be used on forthcoming models. From this standpoint, the book is quite valuable.

In addition to the photos, there are several maps showing various operations, and a sort of chart at the back of the book showing divisional tactical markings. Most of these, while essentially correct, do not show the symbols drawn to scale or in the exact fashion that they were painted on the vehicles. A major criticism is that the English translation is rudimentary and "slim" in comparison to what is available in the German text portions (which convey much more information). It would also seem that some of the photographs were selected for the vehicles that are displayed, rather than for location; I have seen at least seven photographs that were not taken on the Eastern Front! All this detracts from the book's credibility.....

So, I feel that the book is a valuable photographic reference for German equipment and operations on the Eastern Front. I shall not count on the book as a valid reference for data and/or unit formations, as there are just too many errors. While somewhat expensive (unless ordered from a German bookseller in Europe), the book has a lot to offer to a reader primarily interested in the German Army during World War II. from a photographic viewpoint.

AFV INQUIRY

Armor Question from Readers, with
Answers from the AFV-G2 Staff.

Question: Could you provide some information on the World War II. German "Ostkette" special track?

Answer: The first mention of the German "Ostkette" that we can find was in the 1944 Heeres-Technische-Verordnungs-Blatt (or Army Technical Gazette) as Item Number 256.....

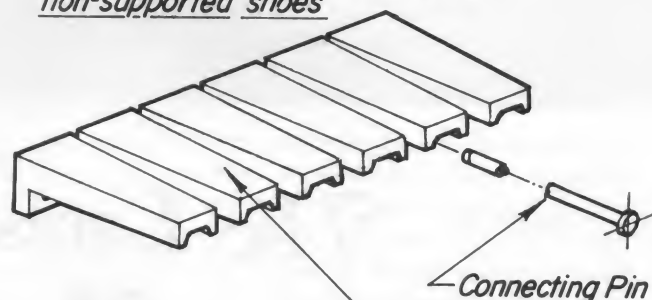
"For armored vehicles based on the chassis of the Pz.Kpfw.III, IV, for the Panzerjäger "Hornisse" and Gw.III/IV, a widened track, known as the "Ostkette" has been developed and is being supplied to units on the Eastern Front. The "Ostkette" is to reduce the sinking-in of the armored vehicles in snow and soft terrain. They are exclusively for the Eastern Front, and distribution to the West, to Italy or to the Balkans to exchange for normal track is denied....." (a paraphrased translation)

As these wider tracks were only used in Russia, and in deep mud or snow, photographic evidence of what the "Ostkette" looked like is rather scarce. Generally, "Ostkette" consisted of extension shoes which were individually "pinned" to the normal track shoes, using longer connecting pins. These extensions, although unsupported vertically, effectively increased the area of track-ground contact, and thus decreased ground pressure, improved traction and lessened the amount of sink into soft surfaces. Since the "Ostkette" extensions were vertically unsupported, the crews had to be careful in traveling over ground cluttered with tree stumps or side obstructions; if the extensions caught on an obstacle, the track guide teeth could be pulled past the road wheels and

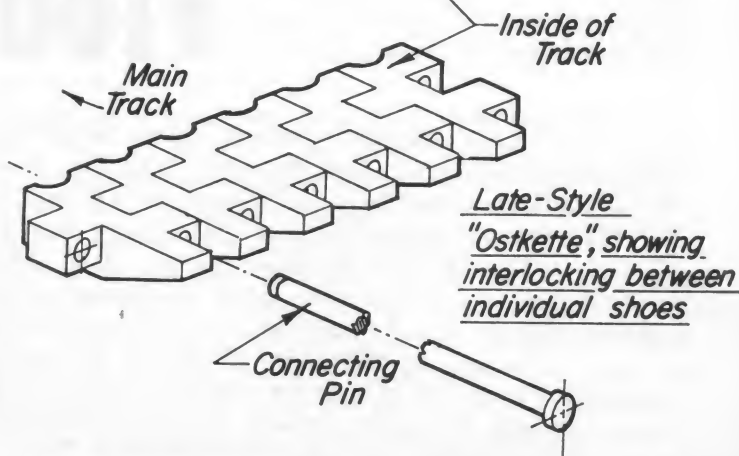
track and the hanging armor skirts. If the skirts were hung too loosely and slanted inward, the extended track could easily catch on the skirts, and the result would be either a lost track or torn skirts. This was specially true with the first and last skirt panels and quite often German tank crews would remove these skirt panels for increased clearance when using "Ostkette".

Earlier versions of "Ostkette" seem to be different from those used at the war's end. On the earlier version, the individual extensions do not support each other and are simple "pinned" to the original track shoes. The four-view sketch shows the "later" style "Ostkette"; the drawing is based on photographs of the Sturmgeschütz III, assault gun on display at Fort Knox, Kentucky. Note that the individual extensions inter-lock together for added lateral strength. Dimensional details are not known at the time this article is being written, and reader help in finding good quality photos and details of "Ostkette" would be greatly appreciated.....

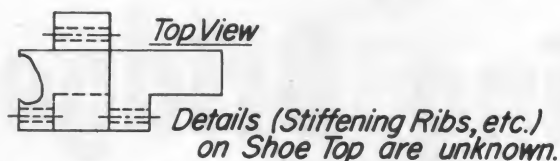
Early-Style (?) "Ostkette", showing non-supported shoes



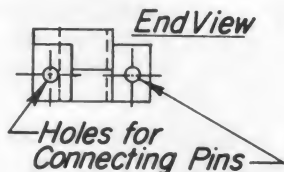
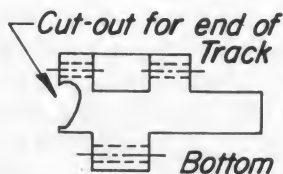
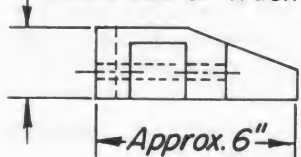
Late-Style "Ostkette", showing interlocking between individual shoes



As the Panzer III, was all but out-of-service in 1944, except for observation and a few command variants, it appears that "Ostkette" were used on: 1) Sturmgeschütz III, 2) Panzer IV, Ausf. G-J, 3) Jagdpanzer IV, 4) Sturmpanzer III. & IV., 5) Panzerjäger "Hornisse" (or "Nashorn") and 15cm Panzerhaubitze "Hummel" vehicles, apparently with some degree of success.....



Thickness of Track



Individual Shoe (Link)
Late-War German
"Ostkette"

the armored vehicle could lose a track easily. Another precaution had to be taken with vehicles equipped with armored side skirts (Schürzen), such as the Panzer IV, and Sturmgeschütz III. Care had to be taken since the extended "Ostkette" left little clearance between the end of the



The Latest Thing in **Floating Bridges**

The U. S. Army Materiel Command's Mobility Equipment Research and Development Center (USAMERDC) at Fort Belvoir, Virginia, has been commended by the Department of the Army for its achievement in development of an improved floating bridge in the near record time of 33 months, with an expenditure of little more than \$3 million.

The "Ribbon Bridge", as the new bridge is called, features fast assembly and superior performance in comparison with equipment now in the Army system. Recently given "Standard A" Classification, it is scheduled for first procurement in fiscal-year 1975.

In use, an individual 22-foot aluminum section, making up the "Ribbon Bridge", is carried in a folded position on a truck. Upon arrival at the desired site, the section is rolled off the rear of the truck into the water, where it unfolds automatically. A 300-foot roadway for heavy tanks can be assembled in approximately one-half hour. This is five times faster than present emplacement time for either the M-4T6 or Class 60 bridging currently in use, and requires only one-half the number of men in the assembly crew.

Above: "Ribbon Bridge", which rests directly on water, will drastically reduce the logistical problems involved in storing, moving, erecting and retrieving the many components of conventional pontoon bridges. The bridge was developed by the U. S. Army Materiel Command's Mobility Equipment Research and Development Center. In the test site shown here, a M-60A1 Medium Tank and an Armored Vehicle Launched Bridge (AVLB) demonstrate the bridge's capability to handle heavy loads.

(U.S. Army Photograph.)

Vest Pocket Artillery

by James Steuard

The concept of "Infantry Guns" in the German Army was born in 1927, and by 1933, this concept had been well-tested and organized. It grew out of a need for "medium" range guns in the direct-control of the infantry for support-fire purposes. In the 1930's, German Army mortars (like those of other nations) were small-caliber, short-range weapons that lacked accuracy. These weapons, while near ideal for infantry squad, section or platoon support, lacked the "punch" required for support of larger operations. Artillery weapons, on the other hand, were heavy, cumbersome things that offered much greater range and power than actually needed. In general, they were too awkward and complicated for use as infantry-controlled weapons. There was thus created a need for a simple, relatively light-weight, low velocity (and low recoil), howitzer-like gun that could provide accurate fire where needed for infantry company and battalion operations.

Initial "Infantry Guns" in the German Army were 7.5cm in caliber and were derived from World War I. artillery pieces. Although continually modified and "improved" (largely through carriage substitutions), these 75mm weapons served as the standard light, towed infantry-support gun until the end of the war. Development of a heavier gun started in 1927 and the evolving weapon was adopted and standardized in 1933; this was the 15cm schwere Infanterie-Geschütz (or heavy infantry gun) 33. In one version or another, this basic heavy gun served in infantry units until war's end.

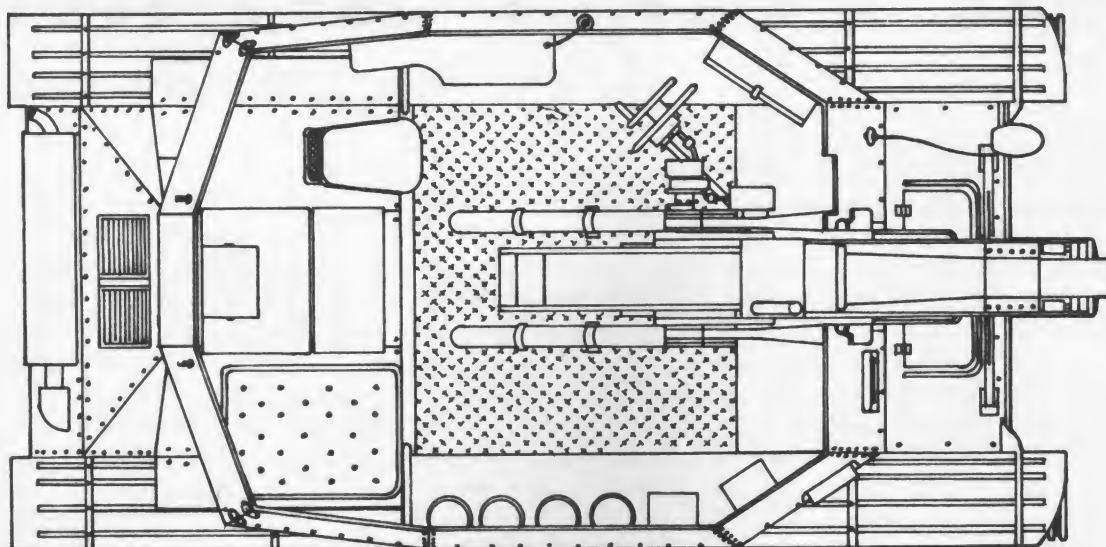
The 15cm s.I.G. 33 was a short-barreled, stubby-looking, boxy weapon that looks positively ancient when compared to other German weapons of World War II. Its short barrel was only 1700mm (or 69") in length, and its muzzle velocity was less than 300 meters per second (under 1000 f.p.s.). The gun had a maximum range of 4700 meters (5140 yards) and range was modified by adding or decreasing from one to six powder charges to the short semi-fixed cartridge case. The high explosive projectile contained over 18 pounds of explosive and the bursting power was sufficient to neutralize virtually any un-armored target encountered by the infantry, from machine gun nests to pill-boxes. In all, there were four different projectiles that could be fired from the gun; these included a smoke projectile and a hollow-charge armor-defeating round.

In the towed configuration, the 15cm s.I.G. 33 was used by practically every German Infantry Regiment, as well as by some German Mountain (Gebirgs-) units. The horse-drawn version had steel shod wheels, while the vehicle-towed gun (used typically by "motorized" and Panzer-Grenadier-Regiments) was provided with rubber-tired wheels (for higher speed towing). In 1939, the 15cm s.I.G. was first mounted on a totally self-propelled chassis; the vehicle chosen was the now obsolete Panzer I, which was available in some numbers. This early self-propelled weapon was employed during the Polish and French campaigns, and the early part of the Russian invasion, until either worn-out or destroyed by the enemy. Motion pictures showing this gun while being fired give a graphic picture of the recoil problems created on the light tank chassis with its top-heavy gun mount, and this early conversion could not have been considered a success.

In 1940, some 15cm s.I.G. 33's were mounted on a modified Panzer II chassis; this conversion was covered in modeling form in AFV-G2, Vol. 3, No. 10. This open-topped vehicle saw limited combat (as it apparently was produced only in limited quantity) in North Africa and Russia. It can be surmised that the conversion, which involved the addition of a sixth axle to the Panzer II chassis to avoid overloading, was too complicated and involved too much acceptance.

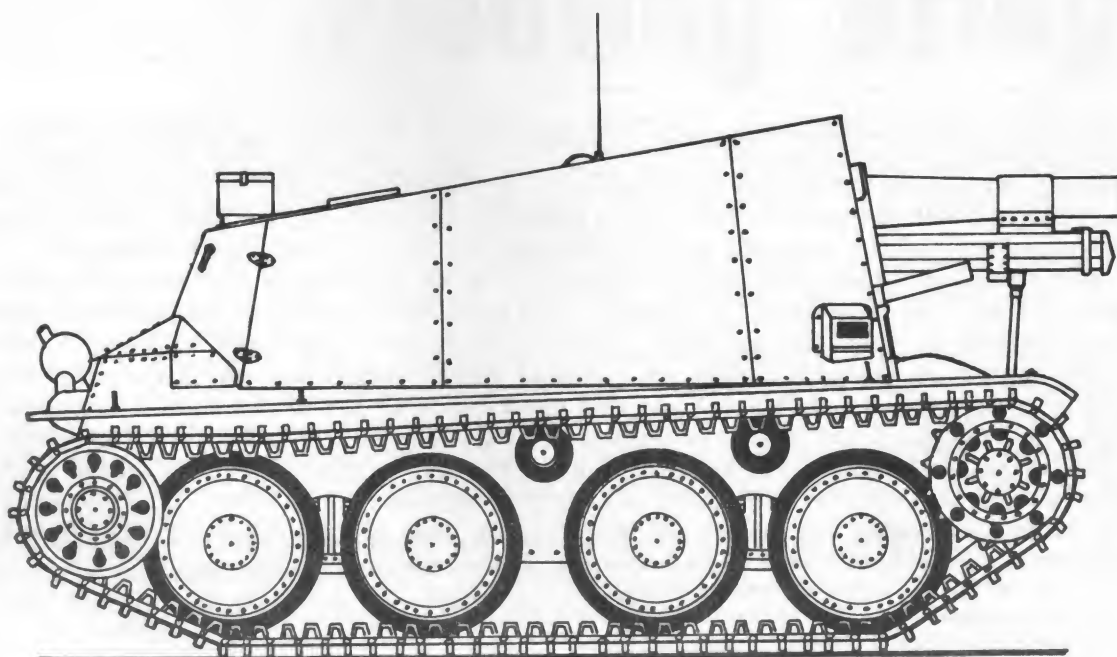
The third and most successful conversion of an obsolete tank chassis to carry the 15cm infantry gun utilized the chassis of the Panzer 38(t) tank. Some sources indicate that these conversions were initiated in 1940; photographic evidence does not reveal any of these vehicles in use prior to 1943, and it is suspected that conversions were started in 1942. This conversion was the most effective of the three and this vehicle was used until the end of the war. The initial modification utilized the original tank, and was designated as the Ausführung (or Model) H; this version is shown in the five-view drawings on the following pages. Due to discovered problems with overloading and poor weight distribution, a factory conversion was started in 1943. This alteration involved the moving of the engine to the center of the chassis and the gun (and crew compartment) being placed at the rear of the hull; this version was designated as the Ausführung M.

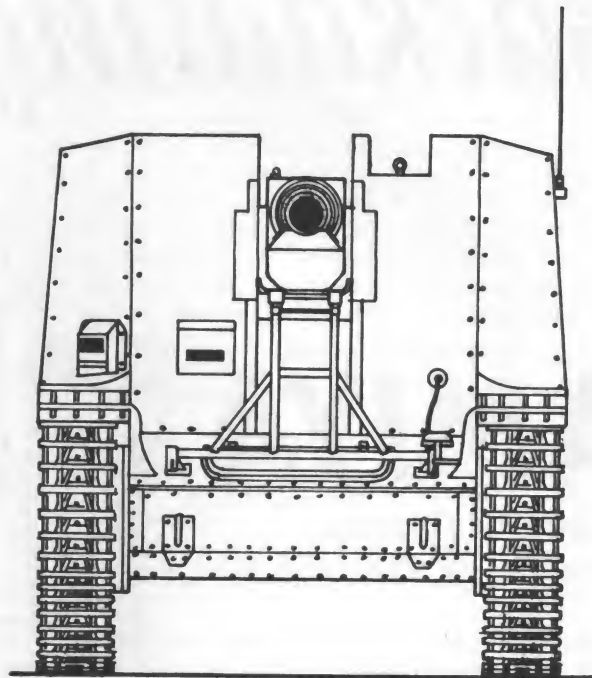
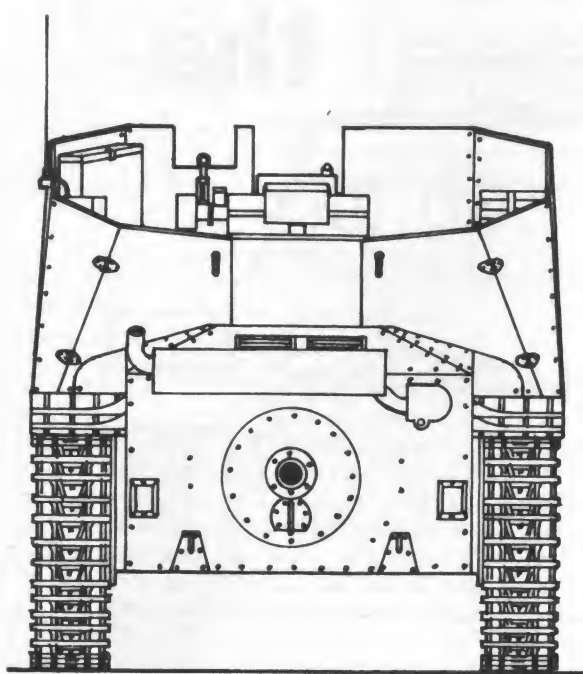
- Continued on Page 33 -



15cm schwere-Infanterie- Geschütz 33/1 auf

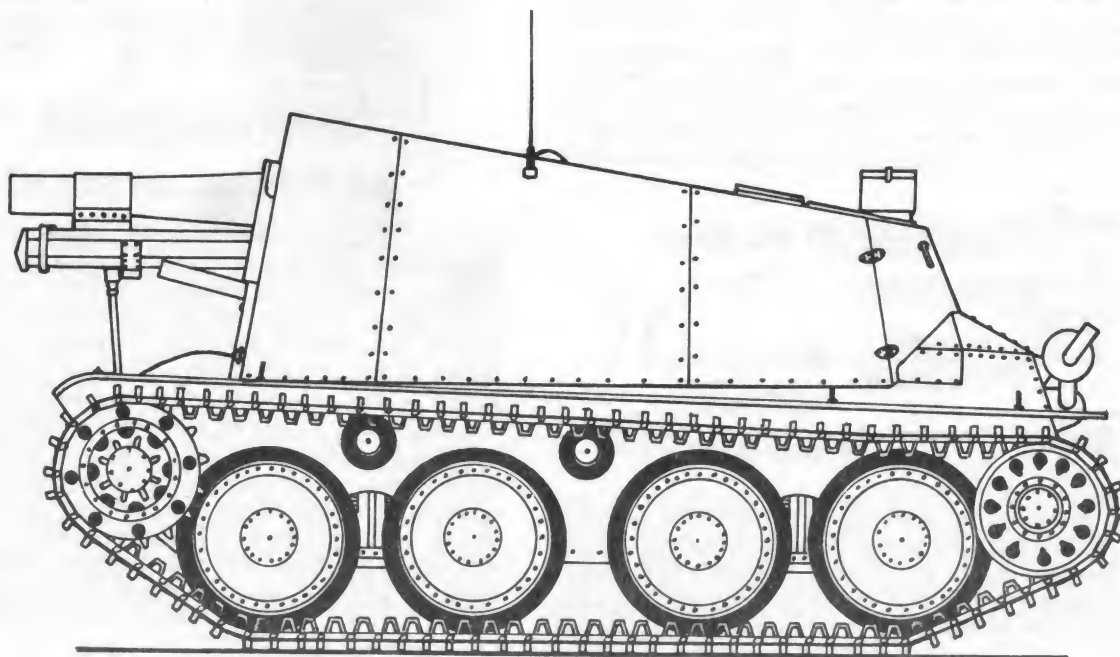
DRAWN BY: STEVEN R. COBB
SCALE: 1/32 (3/8" = 1'-0")



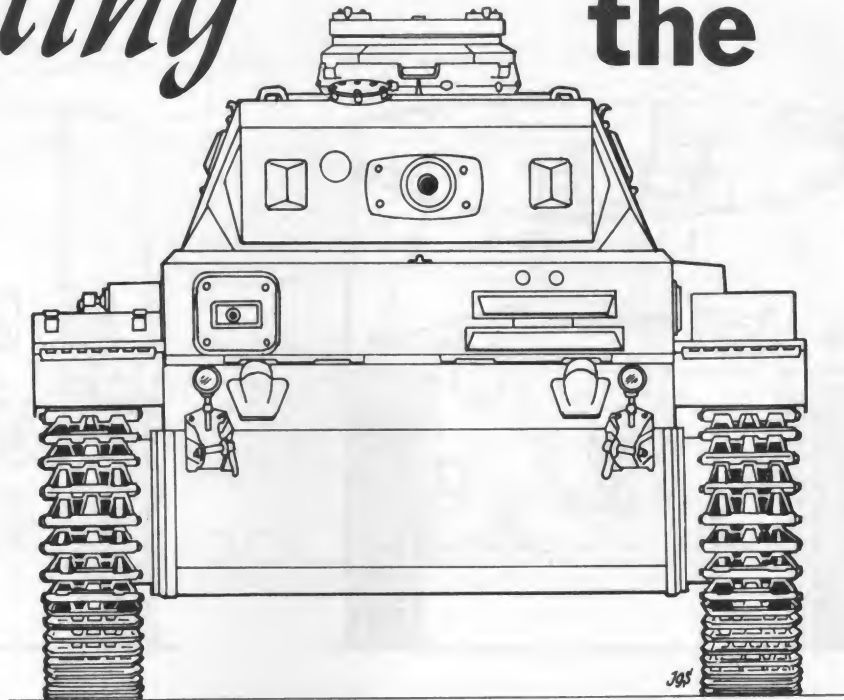


Selbstfahrlafette 38(t) , Ausführung H

“Bison”



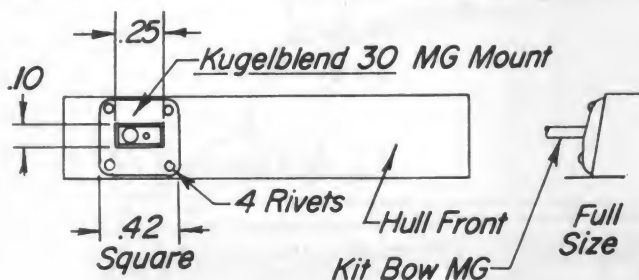
Backdating the TAMIYA PANZER III.



by James Steuard

This is part two of an article which modifies the Tamiya 1:35th scale Panzer III kit so that it represents one of the earlier variants (Ausf. E through G) that were used during 1939-41 by the Wehrmacht.

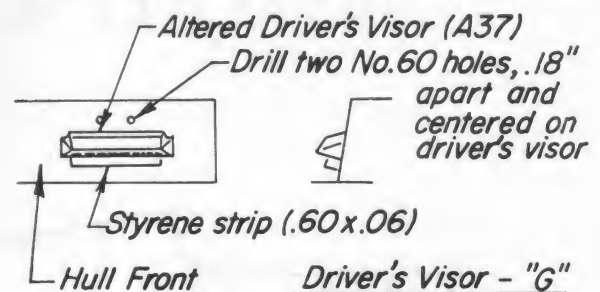
The last remaining hull modification (after the first part of the article) is the necessary changes to be made to the hull front (the driver's and bow gunner's positions). The kit features the late-style "bolt-on" supplemental armor (part A23) which we'll leave-off. First, cut a square from thick (.06 to .10) sheet styrene that measures 27/64" (.42") on a side. After rounding the four corners, carefully cut a .10 by .25 slot in the center of the square, as shown below. Next, round the outer contours of the plate so that it has a curved look, avoiding flat places. After drilling four rivet holes in the four



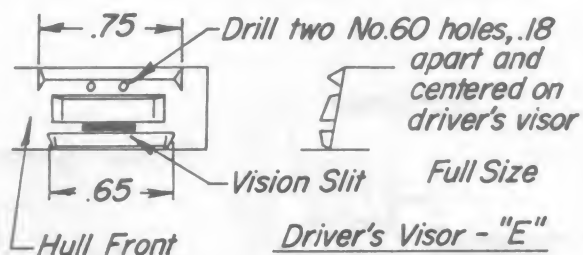
corners of the plate, I installed large-diameter Instant-Rivet to simulate the mounting rivets. Now, cement the mount in position on the hull front. When it's dry, carefully drill a hole (1/16" dia.) in the hull through the center slot, and mount the kit's bow machine gun (although

this could be deferred until later).

At this point, if the reader hasn't determined the exact vehicle model he's making, it's time to do so. This is due to the fact that the driver's visor was different in the Ausf. E-F and the Ausf. G. If you're making an



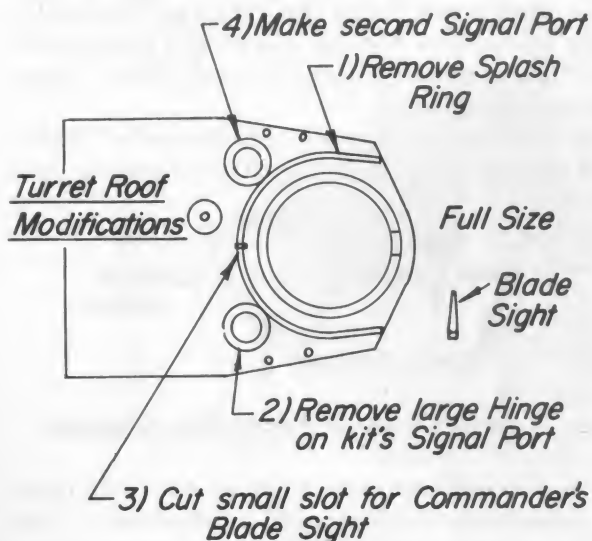
Ausf. G, the kit's visor can be installed "as-is". I have illustrated (above) a minor change which shows a vehicle "buttoned-up" (visor closed); in this modification, remove the lower part of the visor (part A37) and replace with a thin strip of styrene (.60 long by .06 high by .030 thick), in the closed position. In both versions, two "episcopes" holes should be added as shown. Use a #60 drill, and make the centered holes 3/16" apart. In making the Ausf. E-F, discard the kit's visor (A37) and fabricate the main visor blocks (above and below the slot) with blocks of styrene filed and sanded to the correct shape. Cut the vision slot (a line of drilled holes) and cement the main blocks in position. After these have dried, a thin (.010) strip of styrene can be formed into a cover which fits above the two "episcopes" holes. See the illustration.....



There remains one last addition to the hull. There should be a bullet splash shield on the hull top just in front of the turret. This can be easily made from three pieces of styrene measuring 13/16" long by 1/8" wide by 1/16" high. File the three pieces to a triangular shape and install with the 1/8" base down. The center piece is parallel to the hull front and the two side pieces angle to the rear. This shield served to deflect bullets away from the turret/hull junction and is missing in the kit.

Incidentally, I assume you've already removed the "cast-on" tow rope (on the hull rear deck) and opened up the engine air intakes (see AFV-G2, Vol. 3, No. 5).

In modifying the turret to the earlier configuration, plan on installing the rear stowage basket (or bin). This was added in late 1940 and was retrofitted to all of the models still in service. If you're making a French campaign vehicle, this bin should be left off, however, this produces some rather complicated turret changes... which are really outside of the scope and space in this article. Basically, the entire rear of the turret must be rebuilt to change the armor angles and add the cupola

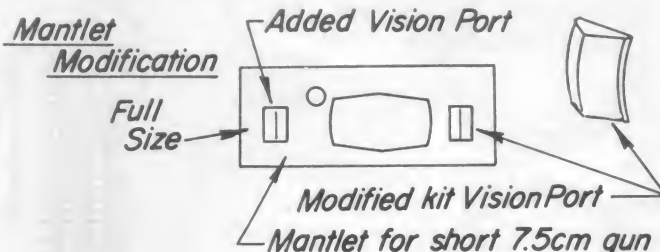


bulge. (Perhaps, this could be a later article.)

Turret roof changes are quite simple: 1) Remove the bullet splash ring just in front of the cupola, 2) carefully file off the hinge on the existing Signal Port (its too large anyway), 3) cut a small slot for the commander's Blade Sight, and 4) construct (duplicate) a new second Signal Port for the opposite side of the roof. The kit turret ventilator can be used as-is, and the Blade Sight can be made and installed after everything else.

On the turret sides, vision ports should be added. These are located on the flat sides forward of the two Escape Doors. In shape, the ports are similar to those on the Escape Doors, but larger. Mine were filed from pieces of styrene 3/8" long by 3/16" high and 1/16" thick. Refer to the side-view drawing in the last issue for the correct location for these ports. Additionally, small strips

of 1/32" styrene should be added immediately in front of the installed vision ports to represent the bullet splash protection. Incidentally, when completing the turret body, do not install the smoke/grenade dischargers as these were not fitted to early Panzer III's. Instead, use the optional lifting hooks (parts A17) cemented in the mounting holes. Next, in going to the gun mantlet, use the one provided in the kit for the 7.5cm L/24 gun. Although the Ausf. E mounted the 3.7cm gun, most of the early models received the 5cm KwK L/42 gun, either retrofitted or as original equipment. If you wish to model an "E" with the 3.7cm gun, you will have to revise the gun mantlet (to an interior type) and construct a smaller gun from scratch.

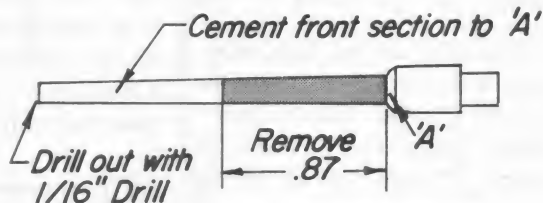


Since the 5cm conversion is such an easy one, this is the one we chose to do. The mantlet provided in the kit requires some rework. First of all, a second vision port must be added to the left side of the mantlet. In adding this port, I used "green stuff", applying a "blob" in the correct location and filing it to shape after adequate drying time. Note that the early vision ports were shaped differently than the one on the kit mantlet. I changed the shape of the kit's port with "green stuff" at the same time as I was adding the second port.

Now on to the gun. First, drill out the end of the 5cm gun provided in the kit; I used a 1/16" drill as it is close in scale to 5cm. Next, measure a 7/8" (.87) length forward from the enlarged portion of the barrel. With a fine saw, remove this 7/8" section and discard it. Carefully, cement the remaining front section of the barrel back in place on the enlarged section and the gun is completed. A small fillet of "green stuff" can be applied at the junction area where the barrel was cemented; on some Panzer III's, a fillet or enlarged area on the barrel is evident, and reference should be made to photos to correctly add this feature.

There were some differences in various vehicle models in cupola design, but these differences can be ignored. Install the split hatches, however, as the one-piece hatch did not appear until the Ausf. L (or later) and would be totally incorrect on a 1939-41 period vehicle.

This completes the conversion of the vehicle



Modification of 5cm KwK L60 to L42

back to the Ausf. E through G configuration. With a well-weathered paint finish, your early model Panzer III, can represent a vehicle during the French campaign, a DAK vehicle (in 1940-41) or a vehicle that participated in the invasion of Russia in 1941.....Good Modeling.....

COLOR 'N CAMOUFLAGE

The German Jagdpanzer 38(t) in
the Endfighting, 1945

by James Steuard

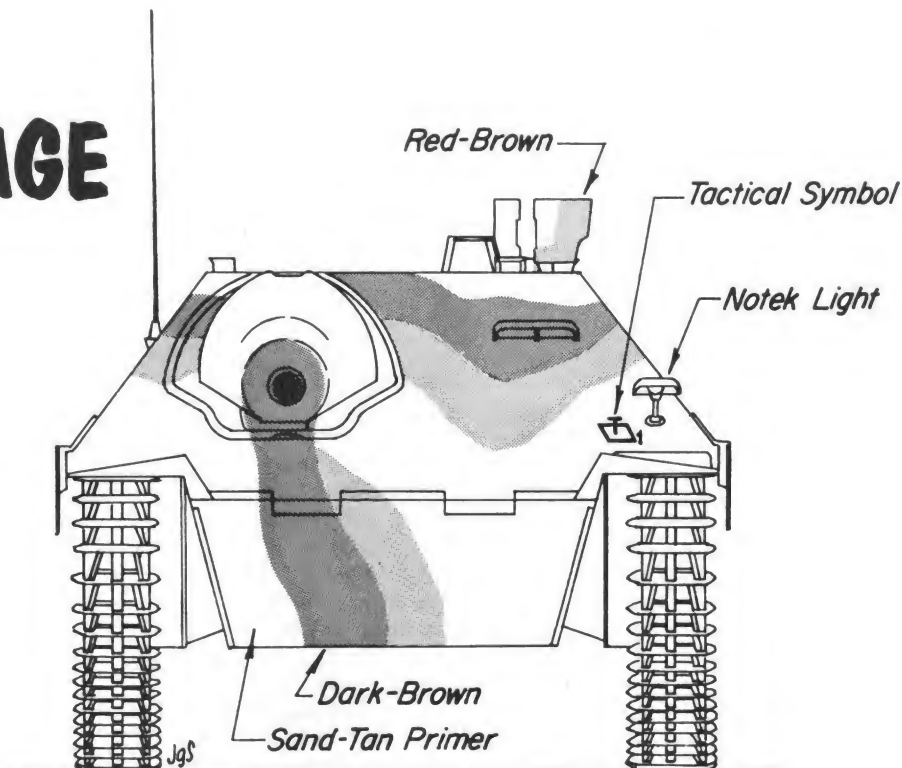
The subject of this
issue's article is an example of
the German Jagdpanzer 38(t) tank
destroyer, nicknamed "Hetzer",
and used from 1943 until the end
of the war. This particular "Hetzer"
was found abandoned by ad-
vancing U.S.Army troops in late
April or early May 1945. This
article is based on two rather-

poor snap-shots taken by one of our readers who was "there". On entering a small village in south-
western Czechoslovakia, just over the border, advancing infantrymen found the "Hetzer" casually
parked on a short street, in excellent condition, apparently abandoned by its crew who preferred
to "vanish" rather than fight. As it was the first German "tank" seen by some of the "GI's", they
took the opportunity to examine the "Hetzer" (and even took some photos).....

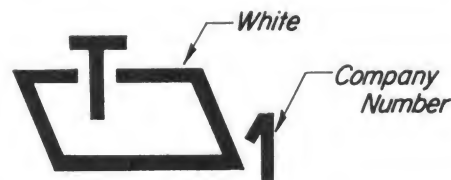
Apparently the German crew, when they left the vehicle, took some precautions. When
the Americans looked-over the Jagdpanzer 38(t), they found that the remote-controlled machine gun
and the optical sighting equipment had been removed. None of
the crew's personal clothing or belongings were "on board"
but the vehicle was otherwise in fighting condition, with a good
supply of ammunition and working radios.....

The vehicle was painted in a three-color paint scheme that deserves illustration. The pattern appears very similar
to that on the Jagdpanzer 38(t) in the Aberdeen Proving
Ground collection, and consists of Redish-Brown and Dark-
Brown bands and patches applied over the vehicle's base (or
primer) coat of Sand-Tan paint. The base Sand-Tan color has previously appeared in AFV-G2 (see
Volume 3, Number 12), as has the Red-Brown camouflage color (see the Volume I. Anthology). The
Dark Brown camouflage color does not seem to have been a "standard" German camouflage color,
however, it may have been locally available at the Czechoslovak production site. The paint chip be-
low illustrates the Dark-Brown color, and the drawings on this and
on the opposite page show the pattern of camouflage on the "Hetzer". Although impossible to tell from the two photographs, it would seem
that the camouflage continued over the top of the vehicle's hull.

GERMAN DARK BROWN
45 parts Floquil RR70 Brown
6 parts Floquil RR20 Red
1 part Floquil RR10 Black
1 part Floquil RR11 White



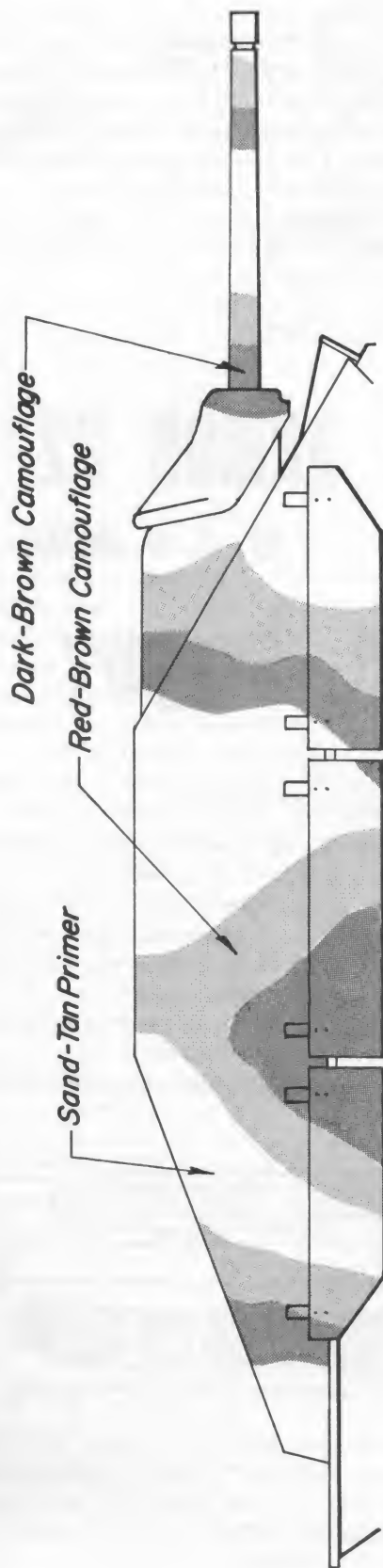
Front View- Jagdpanzer 38(t) of unknown
unit, found abandoned in May 1945



Tactical Symbol- Panzerjäger Kompanie

The only visible tactical marking on the Jagdpanzer
38(t) consisted of the normal tactical symbol used to identify an ar-
mored tank destroyer company; this was applied in white paint to the
hull front of the "Hetzer" below the driver's station, as shown in the
front view above. This symbol combined the standard tactical mark-
ing of a Panzer-Kompanie (the outline style rhombic) with the stan-
dard symbol for an anti-tank (or gun) unit (the letter "T").

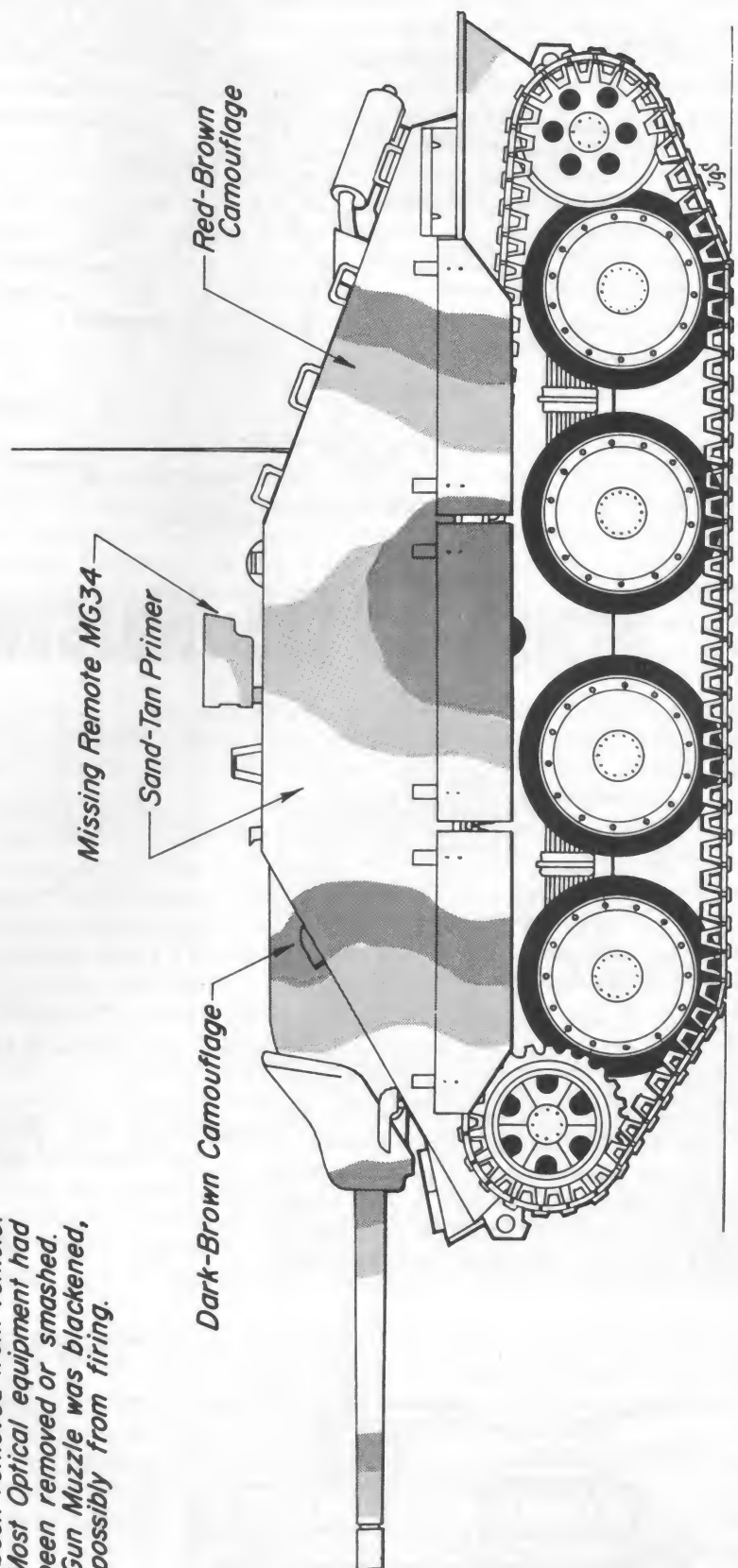
From the lack of any other form of markings, it is im-
possible to identify the Division or possibly Brigade of this vehicle.



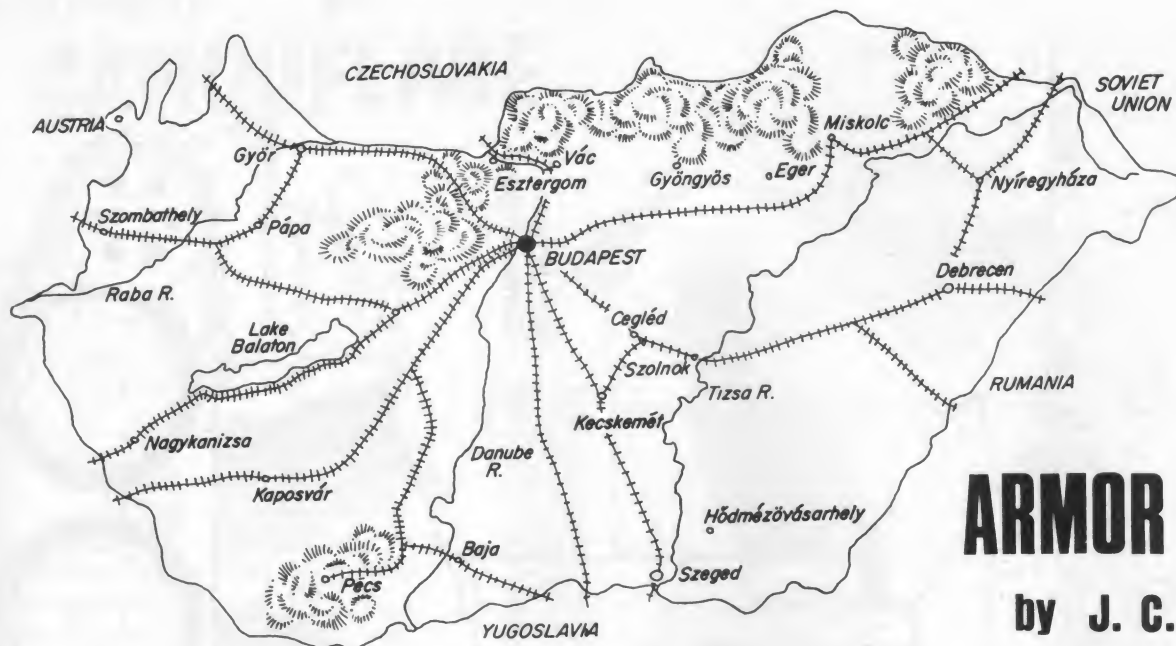
Simplified Right Side View - Jagdpanzer 38(t) "Hetzer"
Showing Camouflage Pattern

Jagdpanzer 38(t) Details

1. Remote-operated MG-34 had been removed from vehicle.
2. Most Optical equipment had been removed or smashed.
3. Gun Muzzle was blackened, possibly from firing.



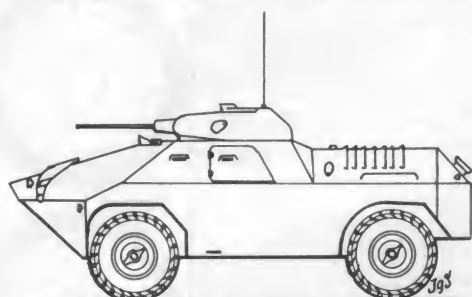
Left Side View - Jagdpanzer 38(t) "Hetzer"



ARMOR G2

by J. C. Johns

Armor of the Warsaw Pact; Hungary

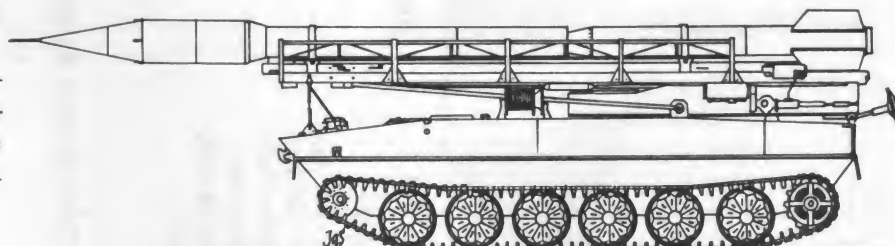


FUG Armored Scout Car

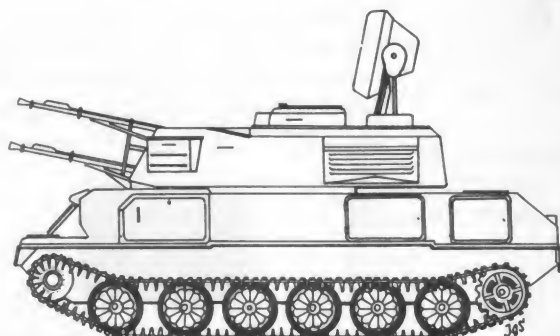
use in motorized and armored infantry units. (The OT units are Czech manufactured.)

Armored Artillery Equipment: SU-100 and JSU-122 self-propelled guns equip the Assault

Gun units of the Hungarian Army, while there are approximately 400 76mm, 85mm and 122mm guns and 122mm howitzers in use with artillery units. There are a few operational FROG Surface-to-surface missiles mounted on lengthened



"FROG 3" Missile and PT Armored Transporter-Launcher



ZSU-23-4 Armored Antiaircraft Vehicle

PT-76 Light Tank chassis. In addition, 57mm towed and "Snapper", "Sagger" and "Swatter" (NATO Code names) guided anti-tank weapons are in use with anti-tank units. Mobile anti-aircraft weapons include ZSU-57, ZSU-23-4 and SA-2 Surface-to-Air Missiles.

This equipment is used to equip two Tank Divisions and five Motorized Rifle Divisions, all based on Soviet patterns. There are two SAM battalions with SA-2 guided missiles operational for air defense.

The Indian Army Reconnaissance Squadron of 1944

by William E. Platz

Among the British Imperial Forces, the role of tactical reconnaissance belonged to the Divisional Cavalry Regiment. At the outbreak of the Second World War, however, the Indian Army Cavalry Regiments were in no way equipped to fulfill this role. Recently converted from horse to motor transport, the Regiments selected to be the "eyes" of the 4th and 5th Indian Divisions were organized on an establishment with too few wireless sets, virtually no supply vehicles, and the bulk of the troops carried in soft-skinned 15 cwt. trucks. In 1940, each "Motor Squadron" (there were three in the Regiment) was composed of a Squadron Headquarters and three Troops, with each Troop having a Headquarters and three Sections of two 15 cwt. trucks. The Squadron was provided two AT rifles and one Bren LMG was issued to each Section. A complement of two British officers, four Viceroy Commissioned Officers (VCO's) and 118 Indian Other Ranks (IOR's) was standard.

Perhaps a word is in order here about that unique organization - the Indian Army. From the beginning of the British presence on the sub-continent, native troops were employed to augment the few British regulars. Gradually, the British "Raj" was extended over the collection of independent states that make up the present nations of India, Pakistan and Bangladesh. With central government came a unified armed force made-up largely of local troops, but with professional British officers. Throughout the Nineteenth and early Twentieth centuries, India was a place where an ambitious and talented young British officer could make a name for himself with a minimum of "red tape". The result was a professional Officer Corps. To fill the gap between British commanders and the Indian Ranks - a gap widened by different languages and cultures - a new grade of officers was introduced. These were the VCO's, who received their commissions from the Viceroy of India (instead of the King). The VCO's fitted into the billets normally assigned to Lieutenants in the British Army, but there were two ranks: Risaldar (Subadar in the Infantry) and Jemadar. The VCO's should not be confused with the regular Non-Commissioned Officers, who were also present with the ranks (titles) of Dafadar and Lance-Dafadar. Another feature of the Indian Army of 1940 was the fact that every man was a volunteer, with a high proportion of long service professionals, even among the private soldiers.

During the campaigns in North Africa, a number of changes were made in the Divisional Cavalry establishment. Bren Carriers were added, first at Regimental Headquarters, then one Troop to each Motor Squadron. Anti-Tank guns, mortars, carriers, etc. were added, then withdrawn, then added again. Finally, a new establishment was promulgated by the General Staff.

The new table of organization called for a change in title - from Divisional Cavalry to "Reconnaissance Regiment", and provided for a versatile unit equipped with a combination of arms. The new regiment was composed of a Regimental Headquarters, a Headquarters Squadron and three Reconnaissance Squadrons, having a total complement of 622 officers and men.

Each of the Reconnaissance Squadrons had a Headquarters organized in two echelons - an administrative group, under a senior VCO, which normally accompanied the Regimental Headquarters; and the fighting echelon, under a British Major as Squadron Commander. The "A" Echelon contained the Supply, Mess and Maintenance Sections, including an American built armored half-track modified as an armored recovery vehicle. Tactical H.Q. for the Squadron was the Humber Mk.IV armoured car of the Squadron Commander. The Second-in-Command was also provided with an armoured car, and there were two Jeeps with Bren guns to go where the armoured cars could not. Each vehicle was equipped with a No.19 wireless set.

The backbone of the Squadron was the Armoured Car Troop. Composed of four Humber Mk.IV armoured cars, the Troop was a fast-moving striking force ideal for operations in open terrain or on a well-developed road network. Their vehicles mounted the 37mm gun, which, unlike similar weapons used in North Africa, could fire a small high-explosive shell in addition to the standard armour-piercing round.

The Squadron's remaining armour consisted of eight Bren Carriers, organized into two Carrier Troops. The Bren Carrier lacked the speed and firepower of the Armoured Car, but its full tracked chassis gave it superior mobility over broken or marshy ground. Each troop was divided in two sections of two carriers - one with a No.19 wireless and the other with a PIAT.

Reconnaissance was the name of the game; and one of the best tools for this was the Jeep Troop. Small, fast and with good cross-country mobility, the Jeep was an outstanding "recce" vehicle - as long as it wasn't necessary to fight anyone for the information. The Troop was divided into three sections of two Jeeps each with a short-range No.18 wireless in each section. The Troop Commander had a No.19 wireless for communications with Squadron and Regimental H.Q.




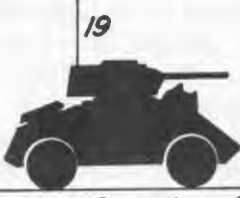
If the armoured cars were the Squadron's backbone, then the Rifle Troop was its heart. This Troop was basically a Motor Infantry Platoon with light mortars and machine guns and transported in White M-3A1 Scout Cars. The mission of the troop was to conduct reconnaissance on foot

- Continued on Page 33 -

Reconnaissance Squadron




of an Infantry Division Reconnaissance Regiment, Italy 1944


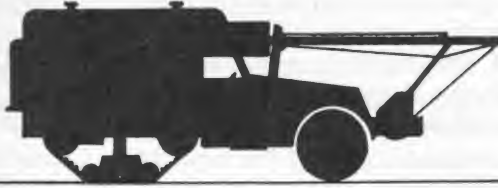
Squadron Headquarters (F Echelon)

			
/ IOR Driver	/ Lt. Adjutant	/ Capt. 2nd in C.	/ Maj. Squadron CO
/ IOR Bren Gun	/ IOR Driver	/ IOR Driver	/ IOR Driver
/ IOR Rifleman	/ IOR Bren Gun	/ IOR Gunner	/ IOR Gunner
	/ IOR Rifleman	/ IOR Radio Op.	/ IOR Radio Op.





Squadron H.Q. (Administrative Echelon)

		
/ IOR Vehicle Cmdr.	/ IOR Vehicle Cmdr.	/ VCO Section Leader
/ IOR Bren Gun	/ IOR Bren Gun	/ IOR PIAT Gunner
/ IOR Rifleman	/ IOR Rifleman	/ IOR Rifleman
/ IOR Driver	/ IOR Driver	/ IOR Driver

		
/ IOR Driver	/ IOR Driver	/ IOR Driver
/ IOR Asst. Driver	/ IOR Asst. Driver	/ IOR Asst. Driver





	
/ IOR Driver	/ IOR Fitter
/ IOR Asst. Driver	2 IORs Electricians, AFV
	3 IORs Vehicle Mechanics
	/ IOR Driver

Armoured Car Troop





			
/ IOR Commander	/ IOR Commander	/ IOR Commander	/ VCO Troop Commander
/ IOR Gunner	/ IOR Gunner	/ IOR Gunner	/ IOR Gunner
/ IOR Radio Op.	/ IOR Radio Op.	/ IOR Radio Op.	/ IOR Radio Op.
/ IOR Driver	/ IOR Driver	/ IOR Driver	/ IOR Driver

Continued on next page.





First Carrier Troop



			
1 IOR Driver	1 IOR Section Ldr.	1 IOR Driver	1 VCO Troop Commander
1 IOR Gunner	1 IOR Driver	1 IOR Gunner	1 IOR Driver
1 IOR PIAT Gunner	1 IOR Gunner	1 IOR PIAT Gunner	1 IOR Gunner

Second Carrier Troop

			
1 IOR Driver	1 IOR Section Ldr.	1 IOR Driver	1 VCO Troop Commander
1 IOR Gunner	1 IOR Driver	1 IOR Gunner	1 IOR Driver
1 IOR PIAT Gunner	1 IOR Gunner	1 IOR PIAT Gunner	1 IOR Gunner

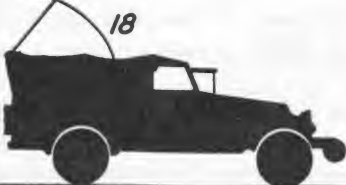
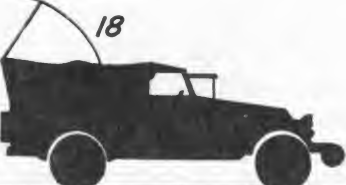
Jeep Troop

			
1 IOR Driver	1 IOR Section Ldr.	1 IOR Driver	1 VCO Troop Commander
1 IOR Gunner	1 IOR Driver	1 IOR Gunner	1 IOR Driver

	
1 IOR Driver	1 IOR Section Ldr.
1 IOR Gunner	1 IOR Driver

Rifle Troop

		
1 IOR Bren Gunner	1 IOR Bren Gunner	1 Lt. Troop Commander
1 IOR PIAT Gunner	2 IORs PIAT Gunners	1 IOR Driver
1 IOR 2" Mortarman	4 IORs Riflemen	1 IOR PIAT Gunner
4 IORs Riflemen	1 IOR Driver	1 IOR Gunner
1 IOR Driver		

	
1 IOR Bren Gunner	1 VCO Troop Sergeant
1 IOR PIAT Gunner	1 IOR Bren Gunner
1 IOR 2" Mortarman	2 IORs PIAT Gunners
4 IORs Riflemen	3 IORs Riflemen
1 IOR Driver	1 IOR Driver

ANZIO



'The Soft Underbelly of Europe'

Part Four

by John Yonos

At 0200 hours on 22 January 1944, the U.S. VI. Corps landed at Anzio; General John P. Lucas, commander of the Corps, was given the tasks of securing a beachhead and of securing the Albano Hills (some thirty miles inland). To accomplish these tasks, the VI. Corps was assigned two divisions for the initial assault with a third division ready to board at Naples as soon as the ships returned from Anzio. Allied intelligence did not yet know of two German divisions (the 29. and 90. Panzer-Grenadier-Divisionen) which were on their way to reinforce the Gustav line, and they warned General Lucas to expect an immediate enemy counterattack. Plans were made for the seizure of the ports at Anzio and Nettuno, and then waiting for the Germans to react.

Feldmarshall Albert Kesselring was quick to react to this Allied threat. Most of the German forces at Anzio had been captured, and the only forces available were Luftwaffe anti-aircraft units around Rome. These units were sent to delay the Allied advance out of the beachhead. The call went-out under the code-name "Fall Richard" for certain German units to assemble around Anzio, however, on the first day, the Germans could only delay an Allied advance. After the second day, the Germans knew that they could contain the VI. Corps; Feldmarshall Kesselring was surprised that the Allies did not strike-out for the hills during this first day, but he counted his blessings.

When no counterattack developed by 28 January, General Lucas okayed plans for the expansion of the beachhead. There were to be two main thrusts: 1) the British 1st Infantry Division was to seize Campoleone (see AFV-G2, Vol. 3, No. 12); and 2) the U.S. 3rd Infantry Division was to take Cisterna di Littoria (see AFV-G2, Vol. 4, No. 1). Both attacks were stopped by the Germans, and the VI. Corps went onto the defensive.

On 1 February, the first reinforcements for the U.S. VI. Corps arrived in the form of the U.S. First Special Service Force (the predecessor of the modern Special Forces). This unit was made-up of men from both Canada and the U.S. and was approximately brigade strength. They were trained for night-infiltration and behind-enemy-lines actions. Upon landing, they relieved the 179th Infantry Regiment, 45th Infantry Division, on the right flank of the beachhead along the Mussolini Canal. After moving into the line, the First Special Service Force (1SSF) immediately started making aggressive patrols to shake-up the defending German Hermann Goring Division; on the first night, they were upset by German snipers and sent out patrols to eliminate the problem. By dawn,

they returned with information on German positions which Allied artillery plastered. By continuing this practice, the Germans were forced back one-half mile.

Lt. "Gus" Heilman, the commander of the 2nd Company, 1st Regiment, 1SSF, led his men into the town of Borgo Sabotino, about one-quarter mile across the canal. After renaming the town "Gusville", they settled down to live there. At night, they would patrol the areas behind the German lines; most patrols returned with prisoners and usually with anything usable that they found. The town had one main street, named "Tank Street" due to the habit of a German tank moving forward at frequent intervals and firing straight down the street. The 2nd Company finally got mad enough to dispatch this nuisance.

A German lieutenant's diary referred to the 1SSF as the "Black Devils" due to their faces blackened for patrols. Another factor which contributed to the fear generated by this force was the pasting of a sticker on the foreheads of ambushed guards or on the rubble of buildings; these stickers bore the insignia of the 1SSF and, in German, "The Worst is Yet to Come!" These not only hurt the morale of the Germans but helped to bolster the Allied morale at Anzio.

Meanwhile, Hitler was issuing personal orders to General Eberhard von Mackensen, commander of the 14.Armee around Anzio, to lance the "abcess" below

Mackensen wanted a broad area of attack, but Hitler would not allow it. This road was the same road traveled by the British 1st Infantry Division on January 29th. By the 1st of February, a very tired and bloodied British division was holding the railroad station, but not the town of Campoleone. Their positions were like a pencil thrust into the German lines. The left flank of the salient was held by the 24th Guards Brigade, which consisted of the 1st Battalion, Scots Guards Regiment (1 Scots Guards), the 1st Battalion, Irish Guards Regiment (1 Irish Guards) and the 5th Battalion, Grenadier Guards Regiment (1 Gren. Guards), with the 2nd Battalion, North Staffordshire Regiment (2 N.Staffs) on loan from the 2nd Brigade.

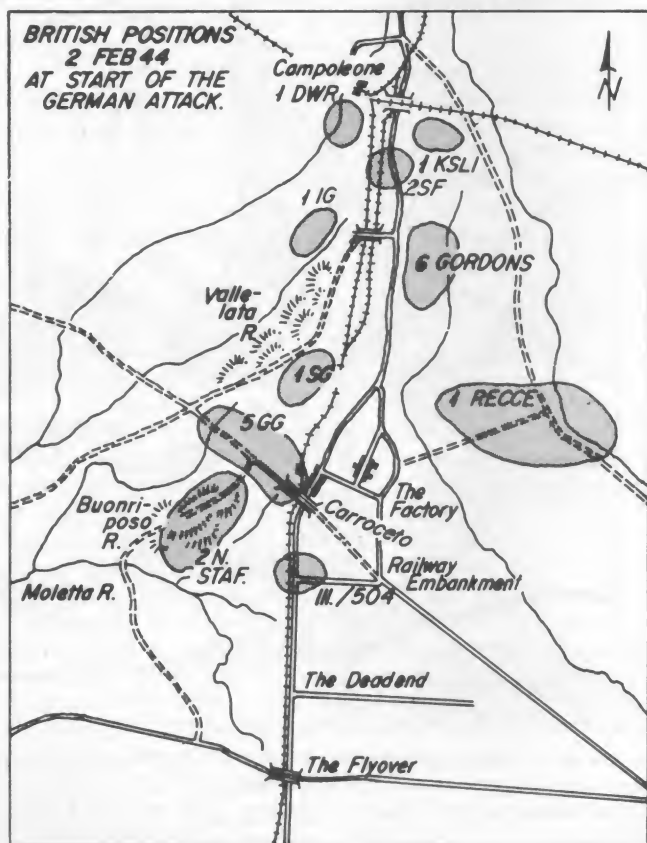


*Shoulder Sleeve Insignia-
British 1st Infantry Division
"An upright white equilateral
triangle on a khaki backing."*

The tip of the salient was held by the 3rd Brigade, which consisted of the 1st Battalion, Duke of Wellington's Regiment (1 DWR), the 2nd Battalion, Sherwood Foresters (2 Foresters) and the 1st Battalion, King's Shropshire Light Infantry (1 KSLI). The right flank was held by the 2nd Brigade of the division, consisting of the 6th Battalion, Gordon Highlander Regiment (6 Gordons) and the 1st Battalion, Loyal Regiment (1 Loyals) with the 1st Reconnaissance Regiment attached to replace the 2 N.Staffs. See the map for the disposition of these units. The U.S. 157th Infantry Regiment, 45th Infantry Division, was on the left flank of the British 1st Division, along the Molella River, while the 509th Parachute Infantry Battalion was on the division's right flank.

In order to get a good springboard for his attack on the beachhead, General von Mackensen had to recapture the "Factory" (Aprilia). After capturing this, he would launch his main attack down the road to destroy the beachhead. The attack on the Campoleone salient began on 2 February with a general artillery barrage all along the line. A small infantry attack was made against the 1 DWR but it was only a diversion. Shortly before midnight, German artillery laid a heavy barrage near the base of the salient and this was followed by an infiltration between the 1 Irish Guards and the 1 Scots Guards. Soon, the 6 Gordons were also under attack. Then the 1 KSLI and 1 DWR reported attacks. Night cloaked the German infiltrators until they were almost on top of the defenders and German battalions were attacking British companies. Although heavy losses were inflicted on the Germans, the British companies were usually overrun.

As dawn broke, rain masked the German attackers. One company of the 6 Gordons retreated without orders and the Germans quickly found the enlarged gap in



Rome. To assist in doing this, an "elite" demonstration battalion, the SS-Panzer-Grenadier-Lehr-Bataillon, was sent from Germany as well as several other units from southern France and Yugoslavia. The Allied attacks on Campoleone and Cisterna di Littoria had badly upset the German timetable for the annihilation of the Anzio "abcess" or beachhead.

General von Mackensen showed his plans for the reduction attack to Hitler, and Hitler decided that the attack would be down the Albano-Anzio road. General von

the British lines. At 0735 hours, six German tanks appeared in front of the 6 Gordons. They overran one company and took a small hill just east of the Albano-Anzio road. Infantry and anti-tank guns followed after them, and additional tanks appeared to be moving in that direction. These were part of Kampfgruppe Graeser, named for its commander, Generalmajor Fritz Graeser. The spearhead of the battle group was Panzer-Grenadier-Regiment 104, of the 15. Panzer-Grenadier-Division. In all, the Kampfgruppe contained three infantry battalions, two artillery battalions, two Pionier battalions and several tank units which included Panther tanks.

On the other flank of the salient, the 1 Irish Guards were under heavy attack by a battalion from the 65. Infanterie-Division, which was supported by tanks and self-propelled guns. By afternoon, the 1 Irish Guards had been forced to retreat due to the deep penetration on their left flank. Tanks of the 46th Royal Tank Regiment (46 RTR) attempted to break into the encirclement, but they were outranged by the German tanks and anti-tank guns. The 46th RTR retreated, bringing with them the remnants of the 1 Irish Guards; this left the 3rd Brigade completely isolated.

General Penny, commander of the British 1st Infantry Division, moved his only reserves into the "Factory" area; this was the 3rd Battalion, U.S. 504th Parachute Infantry Regiment. They had no heavy weapons but were plentifully armed with automatic weapons. Fortunately, a new unit, the 168th Brigade under Brigadier Kenneth Davidson, was landing at Anzio. This was the first unit of the British 56th Infantry Division to arrive. They were not even given time to assemble, but were rushed immediately into the line. One battalion, the 1st Battalion of the London Scots, was to make a counterattack, supported by the 46th RTR, to break through on the right of the 3rd Brigade. They jumped-off at 1600 hours, and by dark, they had managed to break the encirclement.

Meanwhile, the tank destroyers of the 894th Tank Destroyer Battalion were having a pitched battle with German armor. Company B picked-off a Panzer IV, while Company C knocked-out four tanks and an anti-tank gun. The terrain favored only the crews with swifter reactions, and the ground was rolling and so soft that it would hold-up under the tank only as long as the vehicle was moving. In this game, luck was more important than skill, and the quicker eye ruled the battlefield.

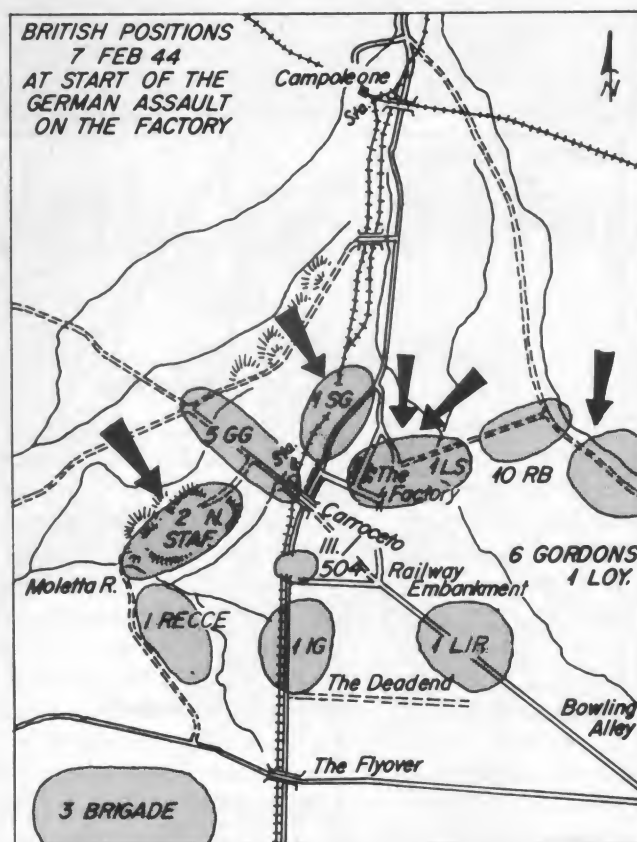
That night, the 3rd Brigade was ordered to withdraw to the "Factory". The 1 DWR and the 2 Foresters were to withdraw through the 1 KSLI, which would then form the rearguard. There was only one road which could handle the traffic and both sides knew it. Allied artillery pounded the German units around the salient, and German artillery did the same to the road. Most of the heavy equipment was left behind, but the men helped each other. During the retreat, the 1 KSLI claimed to have knocked-out two Tiger tanks; the Germans had failed to eliminate the 3rd Brigade as a fighting unit.

On the evening of 5 February, General von Mackensen launched an attack against the U.S. 3rd Division. It began with an intense artillery and mortar barrage concentrated from Formal del Bove creek to Ponte Rotto. Later, tanks moved-in on the flanks of the 2nd Battalion, 7th Infantry Regiment, north of Ponte Rotto and fired directly into their positions. Then flares lit up the night and the German infantry attacked. At 2125 hours, the 2nd Battalion reported to the division commander that they could not hold-out much longer and they were given permission to withdraw.

This withdrawal necessitated the adjacent withdrawal of the 3rd Battalion, 7th Infantry, and the forward platoons of Companies F and G, 30th Infantry Regiment. This left a gap in the sector of the 30th Infantry; Company K of the 30th Infantry, supported by tanks and tank destroyers, made a counterattack to regain the lost positions. By 0230 hours, they had regained the former forward positions of the battalion. The 3rd Battalion, 7th Infantry also counterattacked and by morning, they had regained their old positions with the exception of Ponte Rotto; the Germans pulled-back under the covering fire of their own artillery.

On the evening of 7 February, Company E, 15th Infantry Regiment, attacked toward Ponte Rotto. German opposition was very stiff; by midnight, the attackers had seized only four houses and were far short of their objective. Company F also attacked east of Ponte Rotto to clear the road junction; they drove the enemy back but failed to take the road junction.

At 2100 hours, enemy tanks and infantry attacked Company G, 15th Infantry around Isola Bella, and the



tank fire destroyed some buildings in which Company G had set-up positions. After falling-back because of the momentum of the attack, Company G regained the lost ground by morning, and a second attack was also beaten back with heavy enemy losses.

The 509th Parachute Infantry Battalion (509th) was attacked northeast of Carano on 8 February. Corporal Paul B. Huff of Company A led a patrol toward a draw from which his company was receiving heavy fire. Cpl. Huff knew the approach to the draw was mined, but it was the only route offering any cover; after ordering the six men with him to wait, he proceeded through the minefield. Crawling through a hail of fire from three machine guns and a 20mm gun, he reached the first machine gun position. Poking his weapon into the emplacement, he

killed the enemy crew. He returned to his men, all the while under fire, and upon returning to the company, he volunteered to accompany a second patrol. This patrol killed 27 Germans, captured 21 and caused the rest to withdraw. Cpl. Huff was awarded the Congressional Medal of Honor.

For the tired British 1st Infantry Division, the days since their withdrawal had been spent trying to fortify their new positions around the Factory. The 168th Brigade, British 56th Infantry Division, the unit which had saved the 3rd Brigade from annihilation, was placed in the Factory. Its 1st Battalion, London Scots Regiment (1 London Scots) held the Factory itself; the 10th Battalion, Royal Berkshire Regiment (10 Royal Berks) were to the east; and the 1st Battalion, London Irish Regiment (1 London Irish) were in reserve. The Guards Brigade held the small village of Carroceto, a little south of the Factory. The 2nd Brigade was on the left flank of the division, as was the 1 Recce.

The 2 North Staffs of the 2nd Brigade held the only high ground in the area; Buonriposo Ridge. This ridge had to be held, since if it fell, the whole flank could collapse. The 1 Recce was to their left and the 5 Grenadier Guards was to their right, separated by gaps large enough for companies to infiltrate through; there was just too much ground to cover. In front of these positions were "Wadis", deep, narrow water-courses eroded into the ground which all the men were familiar with as they had been positioned in them before the initial attack on Campoleone. Battalions of infantry could have walked through the "wadis" and be completely hidden from view.

On the 7th of February, the attack on the Factory began again in earnest. General von Mackensen used the same tactics as he had before - small infantry units armed with machine guns infiltrated through the British lines, followed by the main assault. While the British attempted to hold their positions, the infiltrators would fire on them from the rear, causing a good deal of confusion. A second attack was aimed towards Buonriposo Ridge.

About 2100 hours on 7 February, the 2 North Staffs sent messages to Brigade HQ reporting German infiltrations; by 2300 the Germans had launched their frontal assault on the forward units of the 2 North Staffs. Then the radios started going dead; the British #18 portable radio had this facility - breaking down under stress. By midnight, the 2 North Staffs had been pushed off the summit of Buonriposo Ridge; the Germans continued the attack on the remnants of the 2 North Staffs and also swung to the left to strike the 5 Grenadier Guards. The forward units of the 5 Grenadier Guards were overrun and the remainder of the unit retreated down an abandoned railroad bed called the "Embankment". The 3rd Battalion, 504th Parachute Infantry Regiment (504th) was sent forward to plug the hole between the 2 North Staffs and the 5 Grenadier Guards.

The Grenadiers had set-up their Battalion HQ in a deep wadi, the Fossa di Carroceto. It was covered with briars, hiding the depth of the wadi to any viewer above. There was only one place to cross and it was guarded by Major W.P. Sidney and the HQ Support Company. The radio operators at HQ reported more and more company radios going dead, and then the Germans were at the wadi. The briars held them only momentarily. Major Sidney stood-up at the far edge of the wadi to more effectively use a Bren gun against any Germans trying to cross. The Germans opened fire on him, but he continued to stand there until the gun jammed. Crawling back through a hail of German fire, Major Sidney got some grenades and returned to the wadi edge. Now, any Germans trying to cross were greeted by a grenade. One went off prematurely, killing one Guardsman helping the Major to prime the grenades; it also wounded Major Sidney in the legs. A "potatoe masher" struck him in the face, but he was evacuated by his men who had arrived on the scene. The German attack faltered until they could find a way around the wadi. For this action, Major Sidney was awarded the Victoria Cross.

On the other side of the Factory, the second German pincer hit the 10 Royal Berks. Here the tactics were the same. Throughout the night, the Germans pushed the British back. Some German troops, identified as from the 29. Panzer-Grenadier-Division, encountered three tank destroyers from the 849th Tank Destroyer Battalion, under the command of Lt. Bernard Schaefer. His machine guns opened-up on the Germans, sending them into a nearby house., which was then leveled by the main gun of the M-10.

General Penny ordered his only reserves, the battered remnants of the 3rd Brigade to counterattack the Germans on Buonriposo Ridge. They were to have "A" Squadron of the 1 Recce and a squadron of the 46th RTR in support. This counterattack failed because the tanks could not get across the

- Continued on Page 33 -



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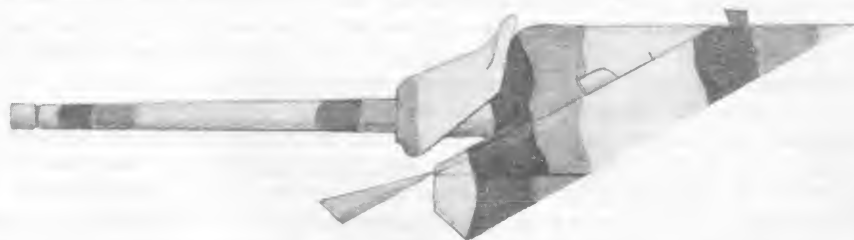
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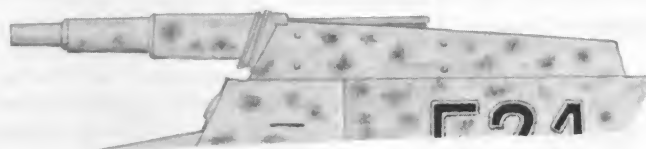
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7.5cm Pak 39 as mounted in the Panzerjäger
(or Jagdpanzer) 38(t) "Hetzer", ca. 1945

guns would be grouped as a single unit, a "Pakfront", under one command. In any case, APCBCHE (principally the 7.5cm Pzgr. Patr. 39 KwK 40) was the preferred round. Fired from a 7.5cm Pak 40, it could deal reasonably well with almost any contemporary tank. Increased contact with heavy Russian vehicles necessitated use of the Pzgr. 40 ammunition, but, as stores of tungsten carbide disappeared, the supply of these rounds dwindled. In fact, there is little mention of their availability after 1943.



7.5cm StuK 37 as mounted in the
Sd.Kfz. 251/9 Armored Halftrack,
circa 1943-1945

TABLE VI. - 7.5cm PROJECTILE FUZES

Fuze Type	Location	Type	Length	Max.Dia.	Thread Length	Delay
Kl. Az. 23	Nose	Mech.Impact	67.7mm	42.8mm	15.9mm	0.1 Second
Kl. Az. 23 umg	Nose	Mech.Impact	—No Data Available—			0.1 Second
Kl. Az. 23 NB	Nose	Mech.Impact or Graze	—No Data Available—			Instantaneous
Az. 38	Nose	Mech.Impact	28.6mm	23.8mm	6.3mm	Instantaneous
Bd.ZF.7.5cm.Pzg. (Small Cavity)	Base	Mech.Impact	45.3mm	270mm	11.1mm	Variable within Shear-wire Tolerance
Bd.ZF.7.5cm.Pzg. (Large Cavity)	Base	Mech.Impact	98.2mm	55.5mm	22.2mm	Variable within Ignition-Compression Tolerance
Bd.Z. 5103	Base	Mech.Impact	—No Data Available—			

RESOURCES:

F.M.von Senger und Etterlin, Die Kampfpanzer von 1916-1966.
U.S.Army, TM-E 30-451; Handbook on German Military Forces, 1945.
U.S.Army, TM 9-1985-3/TO 39B-1A-10; German Explosive Ordnance (Projectiles and Fuzes)
U.S.Army, Historical Study 20/269; Small Unit Actions during the German Campaign in Russia
F.W.von Mellenthin, Panzer Battles
Walter Stutz, Schiesslehre
Rudolf Luser, Die deutschen Waffen und Geheimwaffen des 2. Weltkrieges und Ihre Weiterentwicklung

CLASSIFIED ADS! Starting in Volume 4, Number 4, AFV-G2 will include a classified advertisement section for wants and disposals. Initially, there will be three sections: 1) For Sale, 2) For Trade, and 3) Wanted. Classified advertisements will not be limited strictly to armor and armor-related items, but may cover anything in the general military line. Rates for subscribers will be 8¢ per word (with a \$1.00 minimum), while rates for non-subscribers will be 15¢ per word. If you are hunting for rare kits, or information, or if you want to sell something, your ad will reach thousands of armor readers with each issue of AFV-G2. To reserve an ad, we must receive your ad copy no later than the 15th of the month preceding release. Send your advertisement, printed clearly as you want it to appear, together with the required payment, and we'll do the rest.....

In the German Army (and Waffen-SS), every Infanterie-Regiment, no matter of what type, had an "Infanterie-Geschütz-Kompanie" and this was the "home" unit of the heavy infantry guns. In the standard Infanterie-Regiment (which was still non-motorized in 1944-45), this gun company had six light and two heavy infantry guns. The Panzer-Grenadier-Regiment of the Panzer-Grenadier-Division each had a gun company with six heavy guns; in some divisions these were self-propelled, in others they were towed. In the Panzer-Grenadier-Regiment (both "armored" and motorized) of the Panzer Division, the gun company had six self-propelled 15cm infantry guns for use in supporting the regiment's operations. Only in the late 1944 Volks-Grenadier-Division did equipment shortages limit infantry guns to the light types.

Throughout the war, no Allied Infantry Regiment was equipped with weapons comparable to the German Infantry Gun. The Soviet Army unit used the heavy 120mm mortar in a similar role, but this weapon, even though impressive, could not compare in terms of accuracy and firepower. The U.S. Army in 1944-45 used regimental "cannon" companies but these were armed with light 75mm and, in a few cases, 105mm guns....even today, there is little or nothing comparable in the armies of the world.

The Indian Army Reconnaissance Squadron (Continued from Page 28).

in areas where vehicles could not penetrate, and to provide a base-of-fire for the Squadron. The provision of the Rifle Troop gave the new organization a capability that the Armoured Car Regiments in North Africa never had, that ability to hold an objective, or a place in the front line if need be.

The entire Squadron was often called upon to lead an advance or cover a withdrawal, and it was here that the variety of equipment meshed together to form an effective fighting force. The armoured cars provided a mobile reserve and anti-tank defense. The carriers with their heavy weapons dismounted gave support to the Rifle Troop in holding the ground, while the jeeps provided internal communications. In such circumstances, the Squadron generally received support from the heavier weapons of the Headquarters Squadron, which will be the subject of a future article.

Anzio.....(Continued from Page 31).

muddy ground, and without tanks, the Germans could not be dislodged. The 3rd Brigade was told to hold in place and not retreat. All officers and most NCO's in the 1 KSLI were casualties and the 2 Foresters were down to 17 officers and 364 men.

Meanwhile, Kampfgruppe Graeser had been fighting all evening to capture the Factory. Four German infantry regiments plus armor were used. Directly in their path was the 10 Royal Berks, who held out as long as possible without orders to withdraw. When they finally surrendered, there were only 40 men left in the battalion. Now, the Germans turned to the Factory itself. Hitting the 1 London Scots with artillery, which was devastating in the close factory confines, the Germans assaulted. By late afternoon, the Factory was in German hands. Next month, attempts to retake the Factory and Buonriposo Ridge.....

New Products

News from sources in Japan indicate that Tamiya will be releasing a new 1:35th scale model of a German Sd.Kfz.251/1 Hanomag armored half-track in the near future. The model will represent an Ausführung C with riveted hull.....Bandai has a new model in their 1:48th scale armor series; the new release is an excellent replica of the German VW Schwimmwagen. Taking into account the recent devaluation, this kit will probably sell in the \$2.00 price bracket.....Hasegawa has entered the armor modeling field in 1:72nd scale, with the release of two new kits. These are marketed under the designation "Mini Box" and the first two, numbered 1 and 2, represent a Willys MB "Jeep", complete with two-wheel trailer and towed 37mm AT gun, and the 155mm M2 Gun, known as the "Long Tom", that was used in heavy artillery support roles in World War II. These new kits will be priced in the \$2.00 area. Hasegawa has announced more kits in this new line; these will include an M3 "Stuart" Light Tank, an M3 "Grant" Medium Tank, an M3A1 Armored Halftrack and an M4A1 Armored 81mm Mortar Carrier, all widely used by the US Army in World War II.....In the book line, the latest from Squadron/Signal are on the F8 Crusader and the Heinkel HE-111...

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Letters to the Editor

To the Editor:

This letter is in reference to an article which appeared in Vol. III. No. 12; "The E.S.C.I. BMW R 75 Motor-cycle" by Bruce McRae. In it, Mr. McRae states that he is unfamiliar with the crossed-grenades tactical symbol on his model, Purnell's History of the Second World War, Vol. 7, No. 13 back-cover shows it to be from XXXVI SS-Waffen Gren. (Inf.) Div. "Dirlewanger". Ballentine's Illustrated History of World War II. Weapons Book 16, pp. 139 confirms this, and pp. 159 states that it was formed in 1945 from the Dirlewanger Brigade and that it surrendered in 1945. These facts tend to indicate that only a very small number of vehicles would have carried these symbols and those for only a very short period of time near the end of the war.

C. Goering
Astoria, NY.

Note from the Editor:

Mr. Goering's letter is typical of some twenty letters that we have received, telling us the above information, and listing three diverse sources which indicate the "crossed-grenades" as the tactical symbol for the 36. Waffen-Grenadier-Division der SS (this is the correct German nomenclature for this division). Unfortunately, all three sources should be considered as "secondary" sources at the very best. It is interesting to note that the drawings and statements in the three sources are based on drawings that appeared in the Waffen-SS veterans magazine. Unfortunately, there are numerous errors in the original article/illustrations in the veterans magazine, and these errors were uncorrected when they were taken as fact by the Ballentine, the Purnell, and the E.S.C.I. kit instructions sources, compounding the problem. We are concerned about this situation, as inaccuracies tend to be multiplied when secondary sources are based on secondary sources. It may very well be that the "crossed grenades" are the tactical symbol for the "Dirlewanger" Division, but in thirteen years of checking primary sources (photographs and original German documents), this writer has not found one single primary source to verify the correctness of this tactical symbol (as well as seven others in the Ballentine illustration). Until such time as a primary source photograph or an original document is found, the accuracy of the above tactical symbol should be questioned. We thank those readers who took the time to write and hope that our historical approach is understood.

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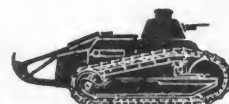
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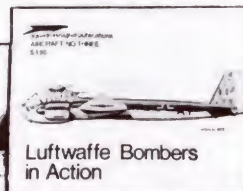
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